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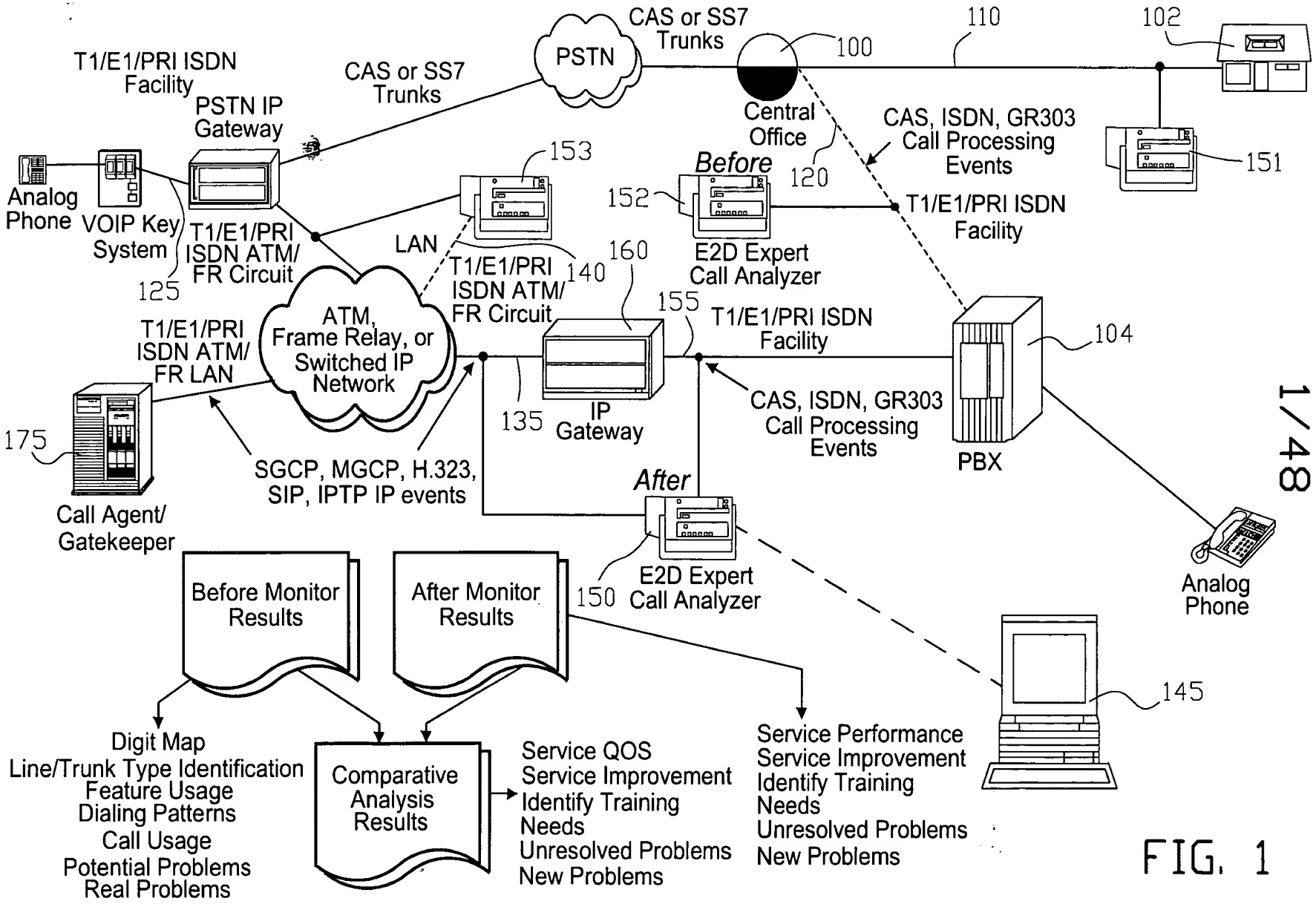

FIG. 1

EXPERT CALL ANALYZER AND NEXT GENERATION TELELPHONY NETWORK CONFIGURATION SYSTEM
INVENTOR: PESTER
APP NO. 09/478,078 DOCKET NO. 023341.P002

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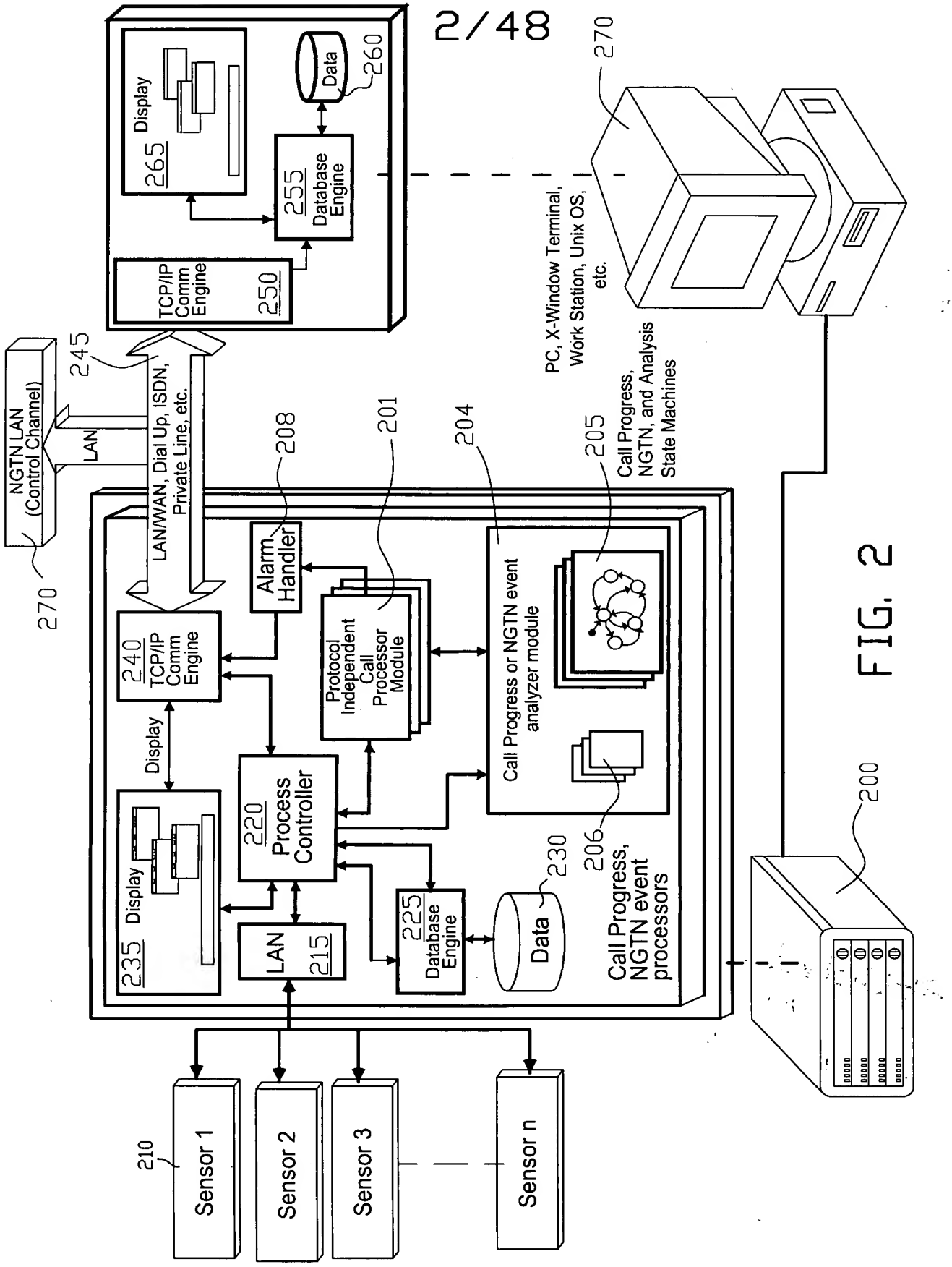

FIG. 2

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Msg. Type	Time (ms)	Side 1 ABCD	Side 2 ABCD	Side 1 CPT	Side 2 CPT	Ckt ID
Supervision Msg. 1 <CR>	0000.000	0101	0101			1<CR>
Supervision Msg. 2 <CR>	0320.000	0000	0101			1<CR>
Supervision Msg. 3 <CR>	0322.000	0101	0101			1<CR>
Supervision Msg. 4 <CR>	0326.000	0000	0101			1<CR>
Supervision Msg. 5 <CR>	0328.000	0101	0101			1<CR>
Supervision Msg. 6 <CR>	0329.455	0101	1111			1<CR>
Supervision Msg. 7 <CR>	1565.100	0101	0101			1<CR>

FIG. 3a

Msg. Type	Time Stamp	Raw Signal	Physical Event
Supervision Msg. 1 <CR>	0000.000	0101,0101	On Hook
Supervision Msg. 2 <CR>	0320.000	0000,0101	Machine Ring On
Supervision Msg. 3 <CR>	0322.000	0101,0101	Machine Ring Off
Supervision Msg. 4 <CR>	0326.000	0000,0101	Machine Ring On
Supervision Msg. 5 <CR>	0328.000	0101,0101	Machine Ring Off
Supervision Msg. 6 <CR>	0329.455	0101,1111	Off Hook
Supervision Msg. 7 <CR>	1565.100	0101,0101	On Hook

FIG. 3b

Msg. Type	Time Stamp	Raw Signal	Physical Event	State
Supervision Msg. 1 <CR>	0000.000	0101,0101	On Hook	Idle
Supervision Msg. 2 <CR>	0320.000	0000,0101	Machine Ring On	Ring On
Supervision Msg. 3 <CR>	0322.000	0101,0101	Machine Ring Off	Ring Off
Supervision Msg. 4 <CR>	0326.000	0000,0101	Machine Ring On	Ring On
Supervision Msg. 5 <CR>	0328.000	0101,0101	Machine Ring Off	Ring Off
Supervision Msg. 6 <CR>	0329.455	0101,1111	Off Hook	Answer
Off Hook Timer	0331.455			Stable Call
Supervision Msg. 7 <CR>	1565.100	0101,0101	On Hook	Station on Hook

FIG. 3c

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Msg. Type	Time (ms)		Ckt ID
CA_NotificationRequest	0000.000	RQNT 1201 endpoint-1@rgw-2567.whatever.net SGCP 1.1 N: ca@cal.whatever.net:5678 R: hd	1<CR>
GW_Ack	0000.123	200 1201 OK	1<CR>
CA_NotificationRequest	0319.856	RQNT 1202 endpoint-1@rgw-2567.whatever.net SGCP 1.1 N: ca@cal.whatever.net:5678 R: hd S: rg	1<CR>
GW_Ack	0319.947	200 1202 OK	1<CR>
CA_Notify	0329.571	NTFY 2001 endpoint-1@rgw-2567.whatever.net SGCP 1.1 N: ca@cal.whatever.net:5678 O: hd	1<CR>
CA_Ack	0330.023	200 2001 OK	1<CR>
CA_NotificationRequest	0332.838	RQNT 1203 endpoint-1@rgw-2567.whatever.net SGCP 1. N: ca@cal.whatever.net:5678 R: hu	1<CR>
GW_Ack	0332.927	200 1203 OK	1<CR>
CA_Notify	1565.367	NTFY 2002 endpoint-1@rgw-2567.whatever.net SGCP 1.1 N: ca@cal.whatever.net:5678 O: hu	1<CR>
CA_Ack	1565.501	200 2002 OK	1<CR>
CA_NotificationRequest	1572.492	RQNT 1204 endpoint-1@rgw-2567.whatever.net SGCP 1.1 N: ca@cal.whatever.net:5678 R: hd	1<CR>
GW_Ack	1572.612	200 1204 OK	1<CR>

FIG. 3d

Msg. Type	Time Stamp	Raw Message	Ckt ID
CA_NotificationRequest	0000.000	CA_RQNT,1201,R: hd	1<CR>
GW_Ack	0000.123	GW_ACK,1201,200	1<CR>
CA_NotificationRequest	0319.856	CA_RQNT,1202,S: rg	1<CR>
GW_Ack	0319.947	GW_ACK,1202,200	1<CR>
GW_Notify	0329.571	GW_NTFY,2001,O: hd	1<CR>
CA_Ack	0330.023	CA_ACK,2001,200	1<CR>
CA_NotificationRequest	0332.838	CA_RQNT,1203,R: hu	1<CR>
GW_Ack	0332.927	GW_ACK,1203,200	1<CR>
GW_Notify	1565.367	GW_NTFY,2002,O: hu	1<CR>
CA_Ack	1565.501	CA_ACK,2002,200	1<CR>
CA_NotificationRequest	1572.492	CA_RQNT,1204,R: hd	1<CR>
GW_Ack	1572.612	GW_ACK,1204,200	1<CR>

FIG. 3e

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Msg. Type	Time Stamp	Raw Message	Call Control Event	State
CA_NotificationRequest	0000.000	CA_RQNT,1201,R: hd	Wait for Off Hook	IdleWaiting
GW_Ack	0000.123	GW_ACK,1201,200	Command Accepted	IdleReady
CA_NotificationRequest	0319.856	CA_RQNT,1202,S: rg	Ring Phone	AlertingStart
GW_Ack	0319.947	GW_ACK,1202,200	Command Accepted	Alerting
GW_Notify	0329.571	GW_NTFY,2001,O: hd	Off Hook	CallAnswered
CA_Ack	0330.023	CA_ACK,2001,200	Information Accepted	StableCall
CA_NotificationRequest	0332.838	CA_RQNT,1203,R: hu	Wait for Off Hook	StableCallWaiting
GW_Ack	0332.927	GW_ACK,1203,200	Command Accepted	StableCallArmed
GW_Notify	1565.367	GW_NTFY,2002,O: hu	On Hook	Disconnect
CA_Ack	1565.501	CA_ACK,2002,200	Information Accepted	Idle
CA_NotificationRequest	1572.492	CA_RQNT,1204,R: hd	Wait for Off Hook	IdleWaiting
GW_Ack	1572.612	GW_ACK,1204,200	Command Accepted	IdleReady

FIG. 3f

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Time Stamp	Current Call Progress State	Current NGTN Control State	Current Analysis State	New Analysis State
0000.123	Idle	IdleReady	Idle	Idle
0319.856	Idle	AlertingStart	Idle	CircuitReady
0319.947	Idle	Alerting	CircuitReady	AlertingReady
0320.000	Ring On	Alerting	AlertingReady	AlertingNormal
0322.000	Ring Off	Alerting	AlertingNormal	AlertingNormal
0326.000	Ring On	Alerting	AlertingNormal	AlertingNormal
0328.000	Ring Off	Alerting	AlertingNormal	AlertingNormal
0329.455	Answer	Alerting	AlertingNormal	StopRinging
0329.571	Answer	OffHook	StopRinging	RingingStopped
0330.023	Answer	StableCall	RingingStopped	StableCallWaiting
0331.455	Stable Call	StableCall	StableCallWaiting	ValidCall
0332.838	Stable Call	StableCallWaiting	ValidCall	DisconnectWaiting
0332.927	Stable Call	StableCallArmed	DisconnectWaiting	DisconnectArmed
1565.100	Station On Hook	StableCallArmed	DisconnectArmed	Disconnect
1565.367	Station On Hook	Disconnect	Disconnect	CallClearing
1565.501	Station On Hook	Idle	CallClearing	ValidEndOfCall
1572.492	Station On Hook	IdleWaiting	ValidEndOfCall	ResetStart
1572.612	Station On Hook	IdleReady	ResetStart	Idle

FIG. 3g

Time Stamp	Current Call Progress State	Current NGTN Control State	Current Analysis State	New Analysis State
0000.123	Idle	IdleReady	Idle	Idle
0319.856	Idle	AlertingStart	Idle	CircuitReady
0319.947	Idle	Alerting	CircuitReady	AlertinReady
0321.949	Idle	Alerting	AlertingReady	AlertTimeOut
0323.949	Idle	Alerting	AlertTimeOut	GW_ErrNoRinging
0353.955	Idle	Disconnect	GW_ErrNoRinging	CallCancel
0354.129	Idle	Idle	CallCancel	InvalidCall
0363.013	Idle	IdleWaiting	InvalidCall	ResetStart
0363.131	Idle	IdleReady	ResetStart	Idle

FIG. 3h

OCT 23 2003
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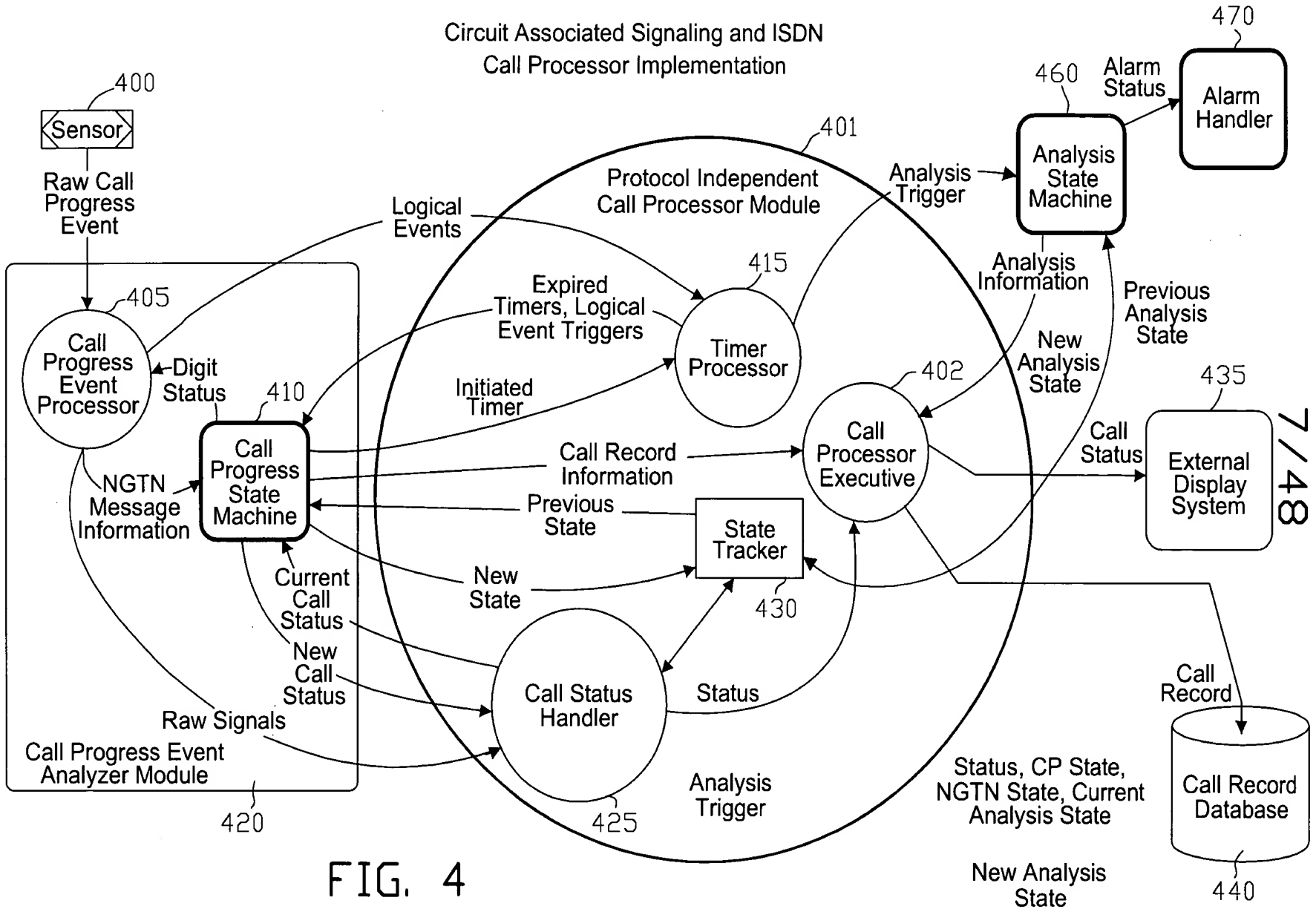

FIG. 4

OIPE
OCT 23 2003
PATENT & TRADEMARK OFFICE

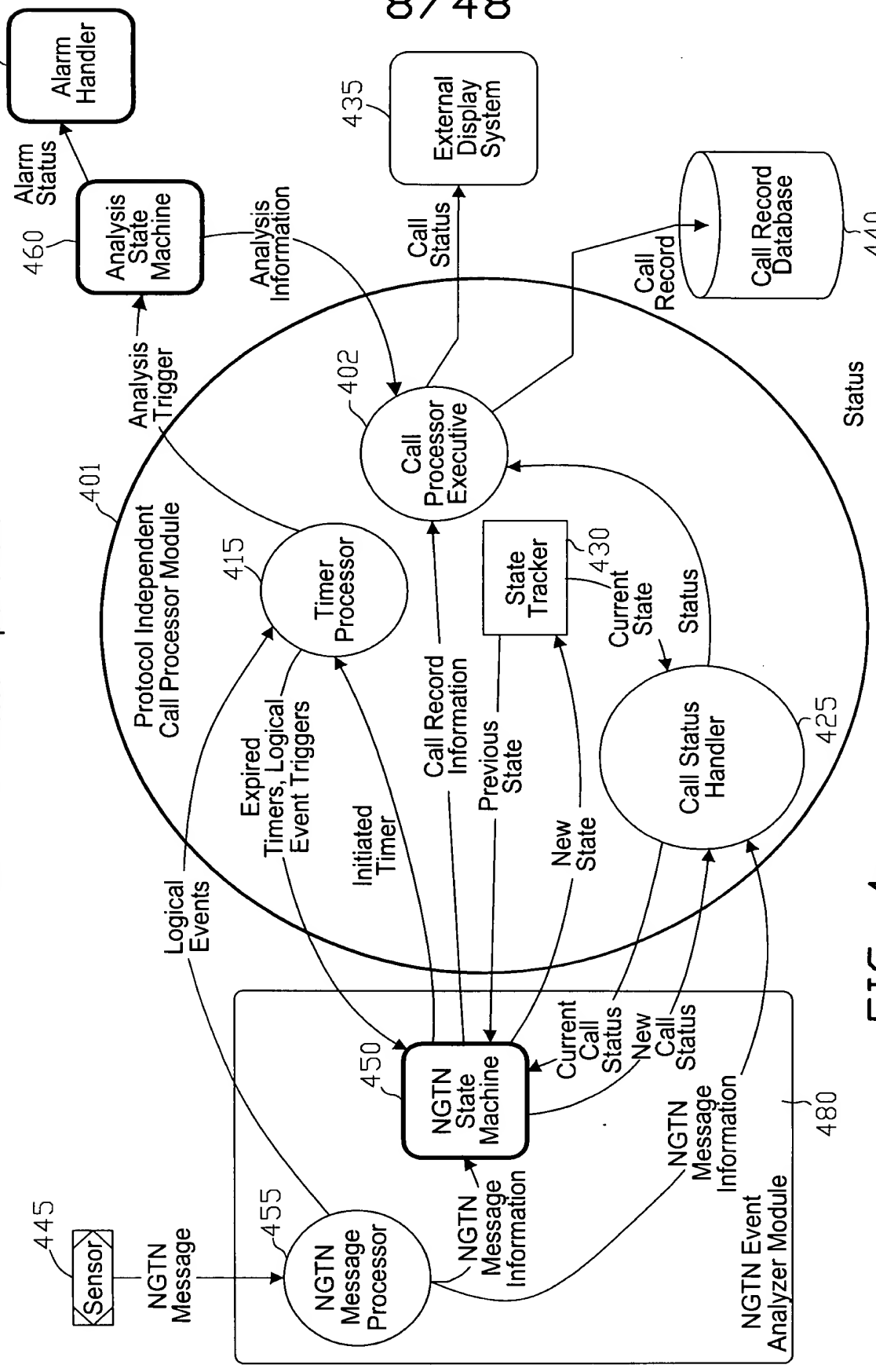

FIG. 4a

OIPE
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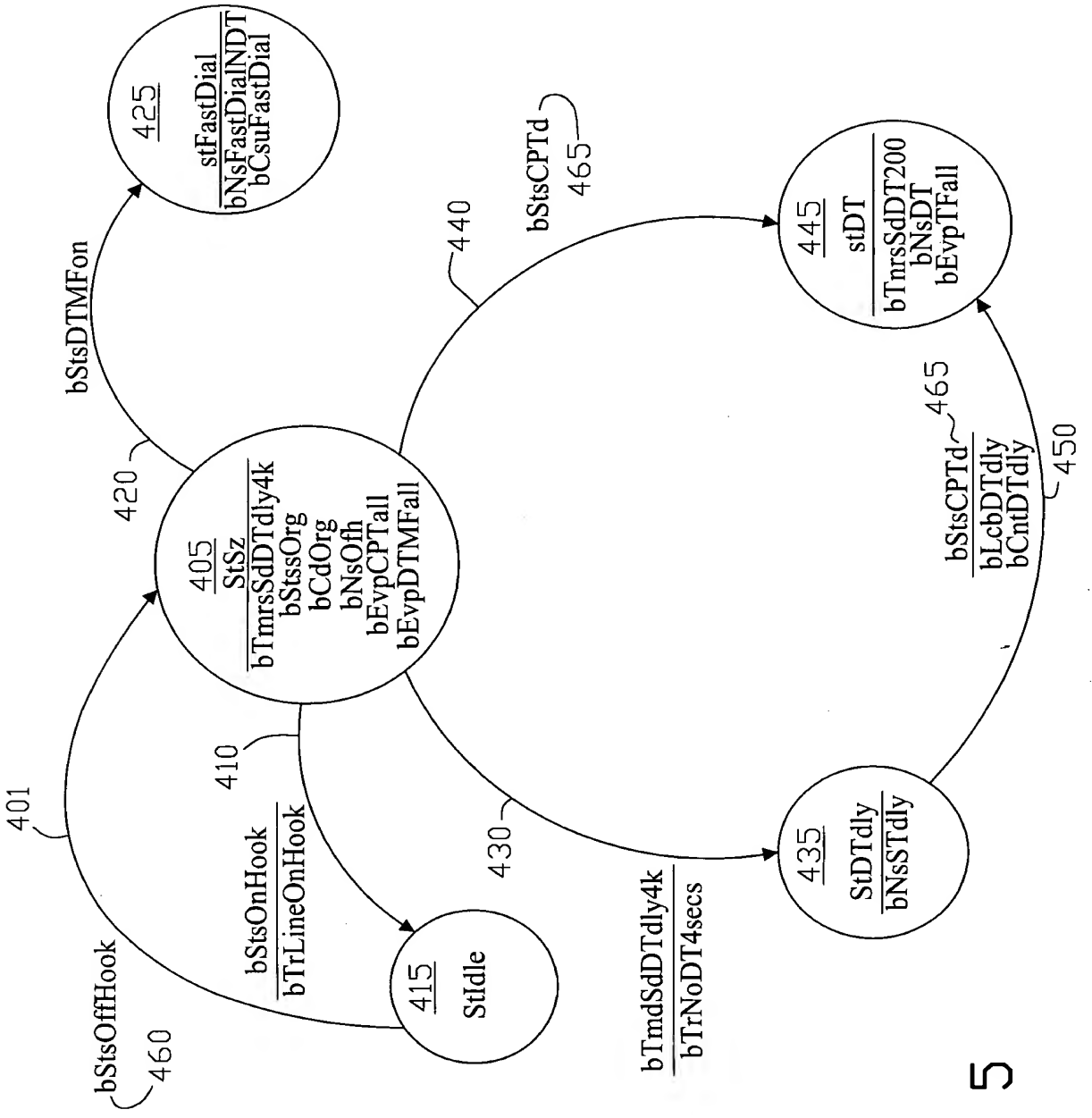

FIG. 5

OCT 23 2003
PATENT & TRADEMARK OFFICE

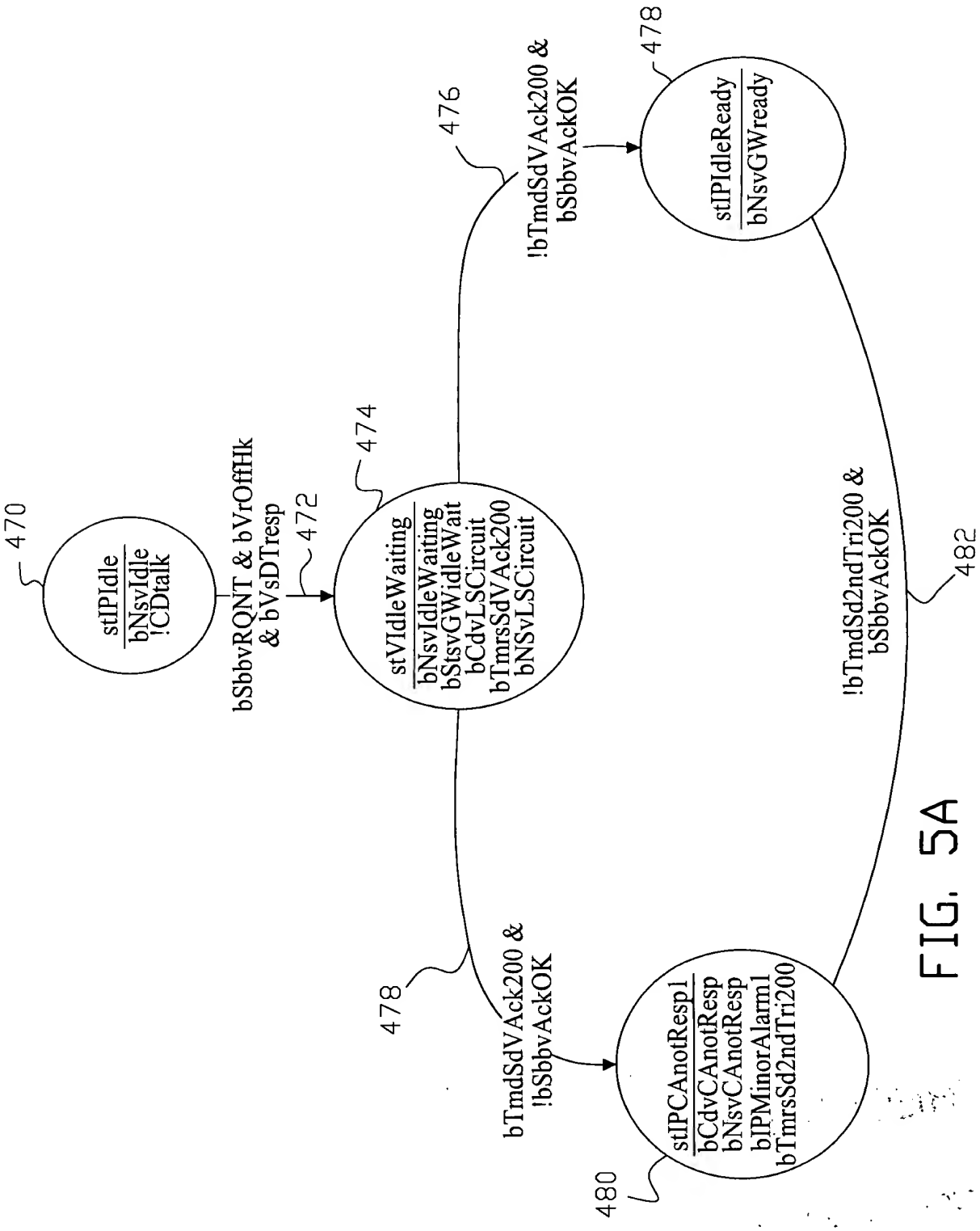

FIG. 5A

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PATENT & TRADEMARK

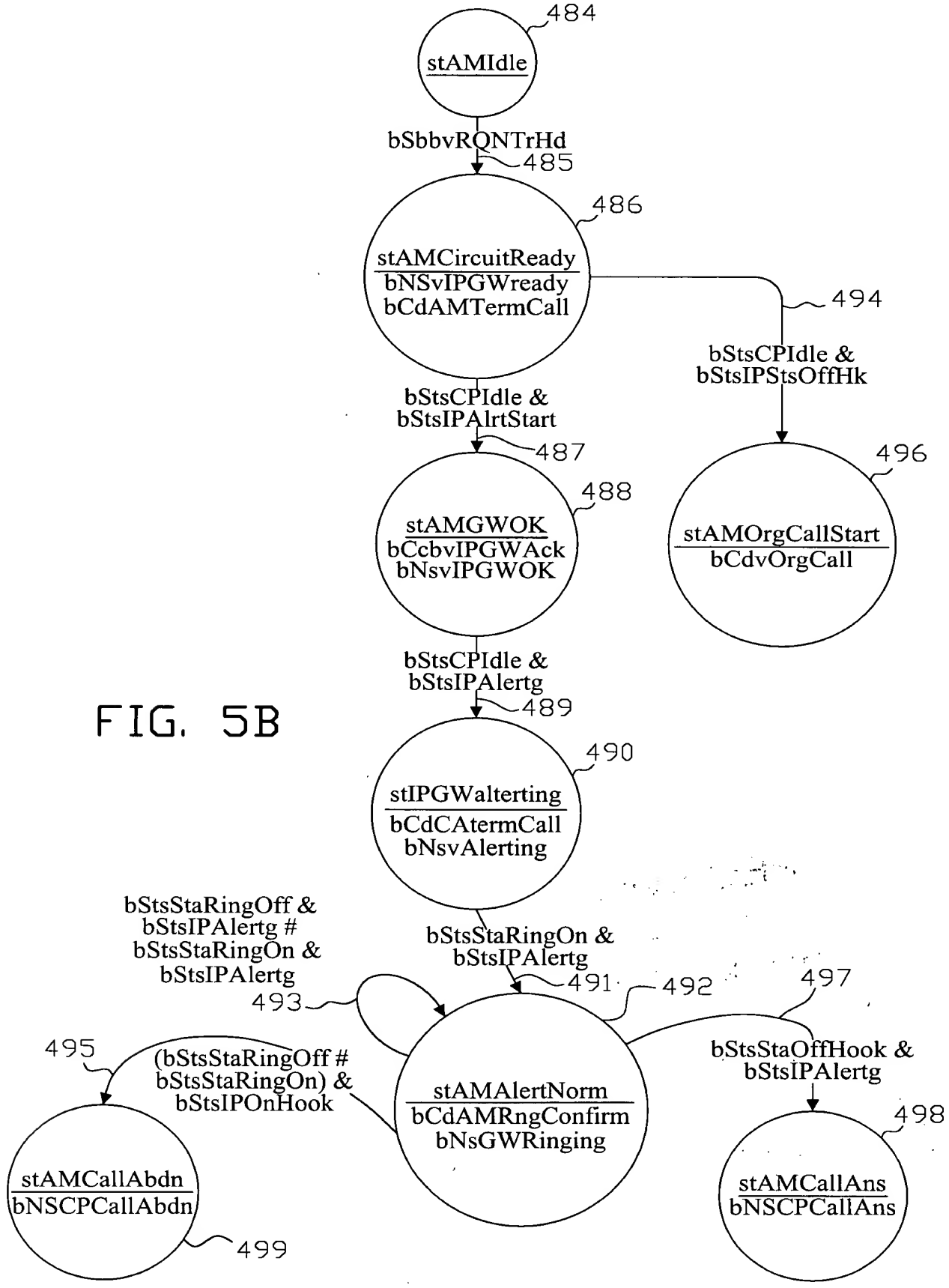


FIG. 5B

OCT 23 2003
PATENT & TRADEMARK

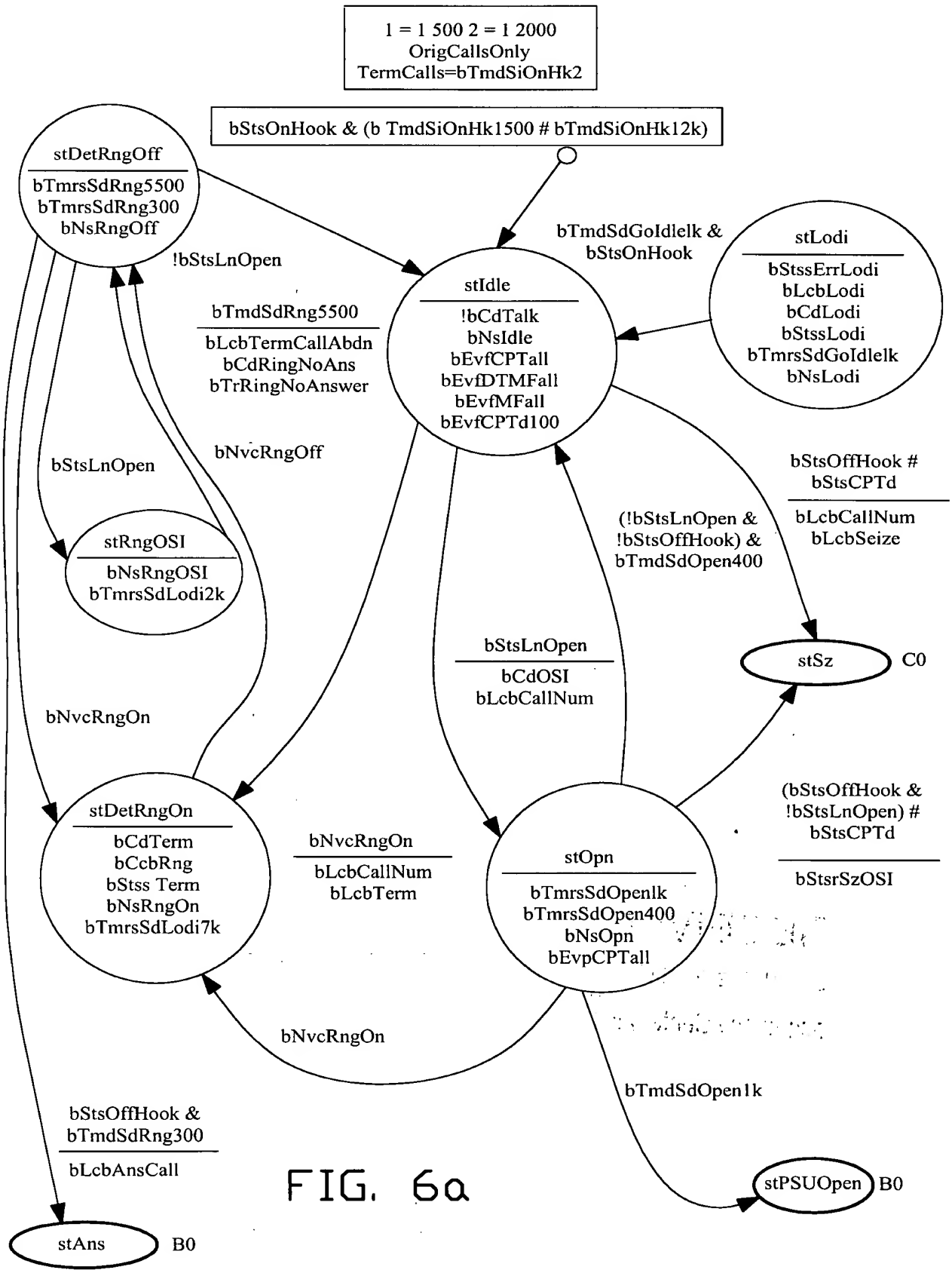


FIG. 6a

OCT 23 2003
PATENT & TRADEMARK

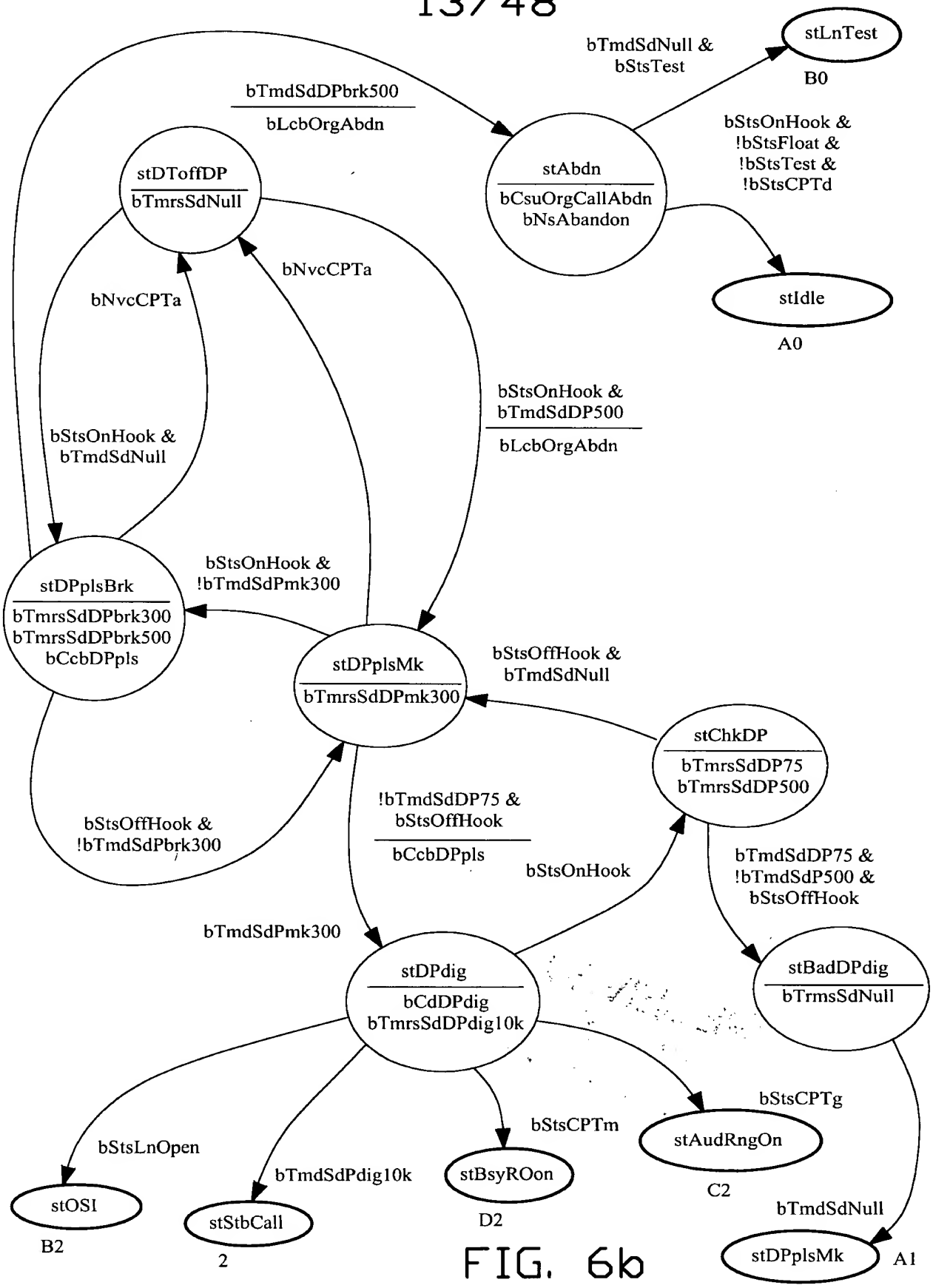


FIG. 6b

OIPE SC
OCT 2 3 2003
PATENT & TRADEMARK

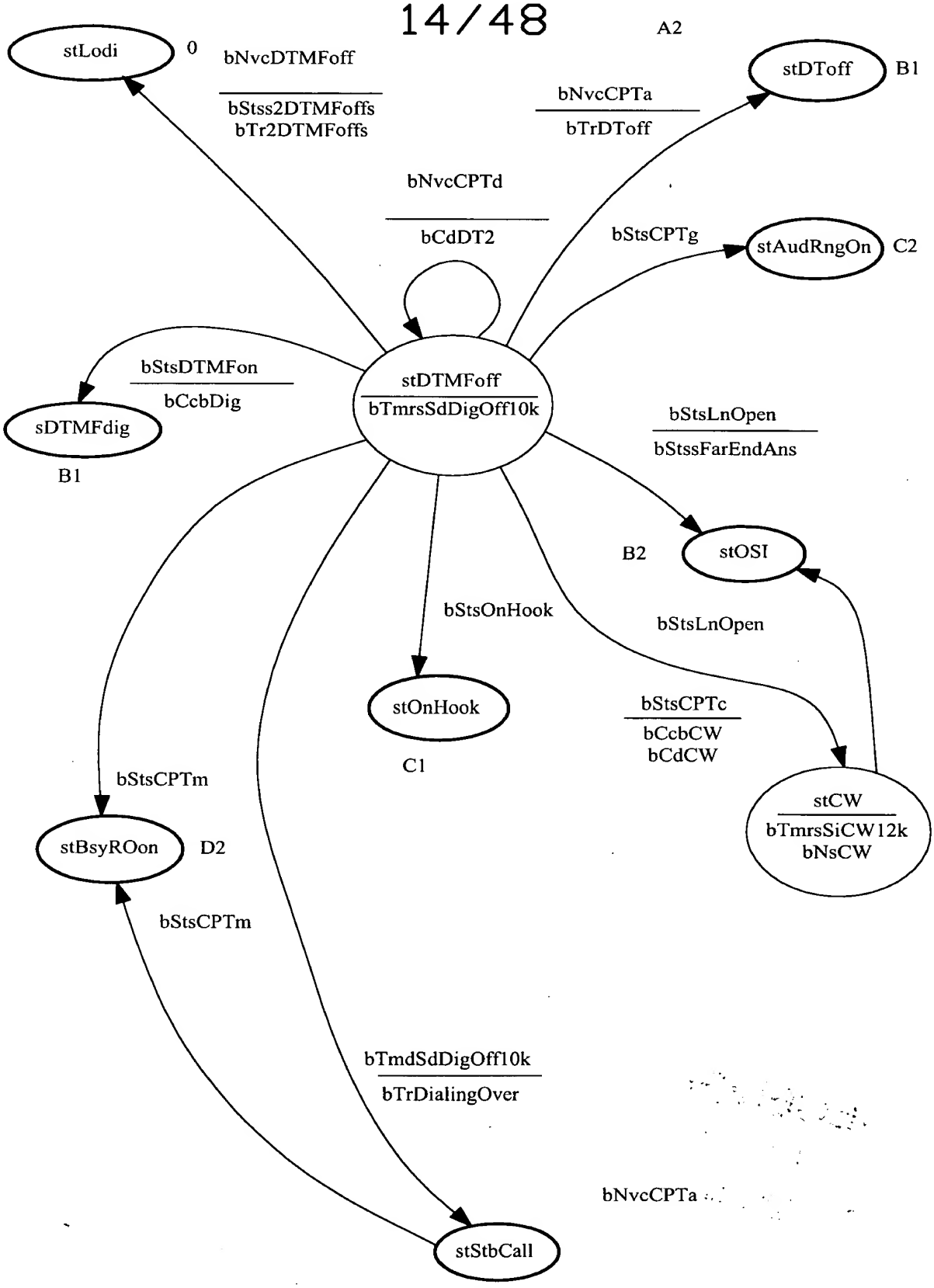


FIG. 6c

OIPE
OCT 2 3 2003
PATENT & TRADEMARK

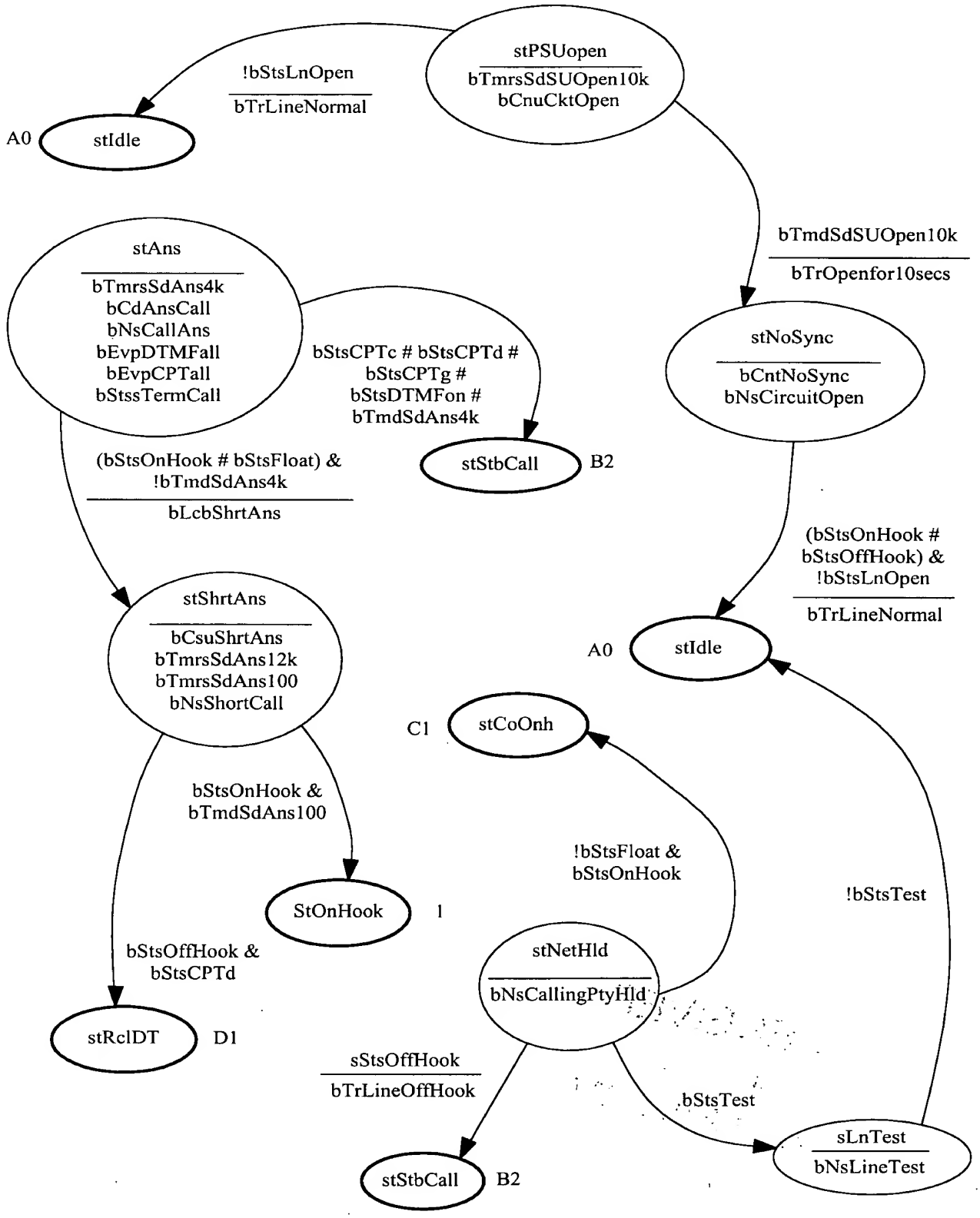


FIG. 6d

OIPE JC184 OCT 23 2003 PATENT & TRADEMARK OFFICE

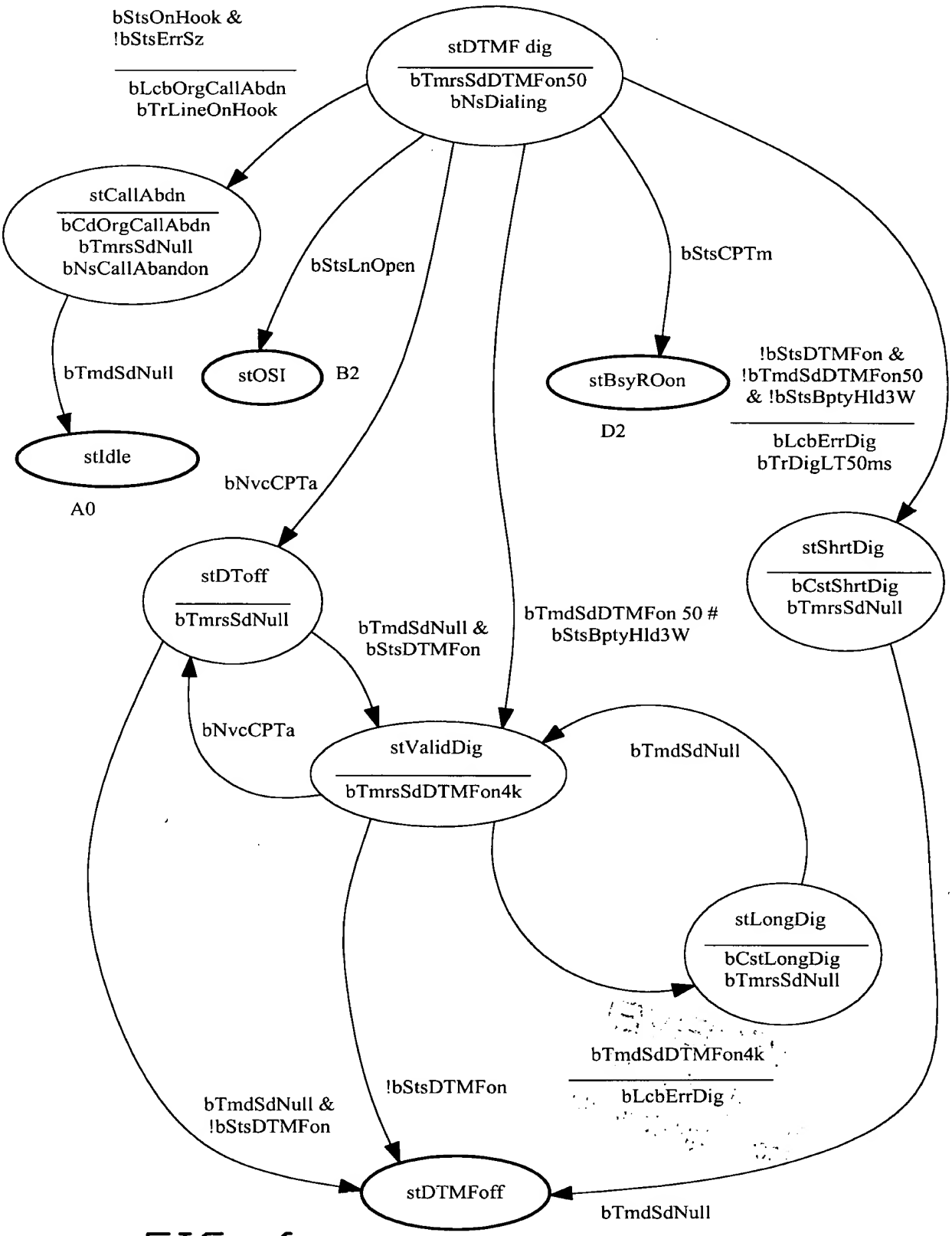


FIG. 6e

OCT 23 2003
PATENT & TRADEMARK OFFICE

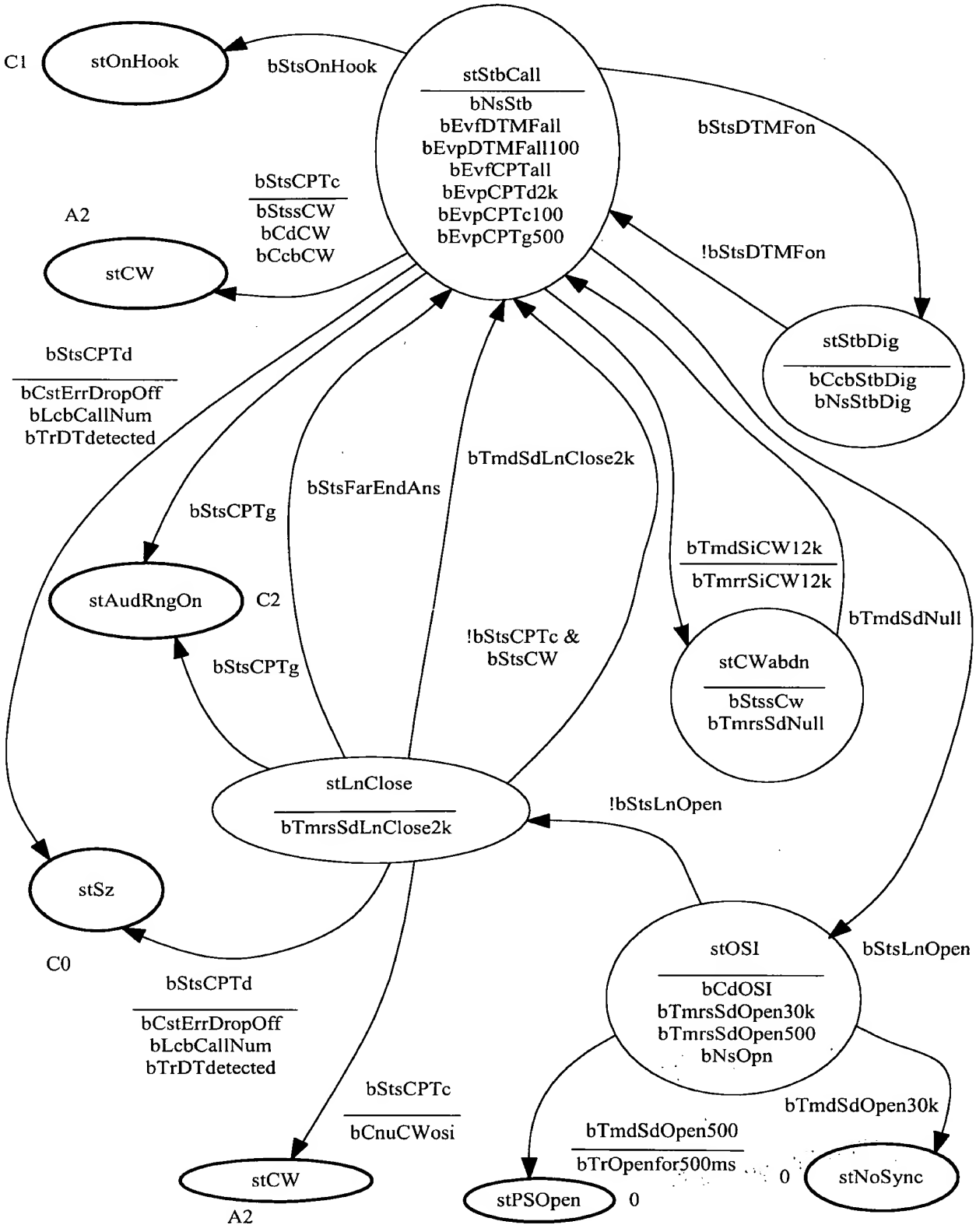


FIG. 6f

OIPE JC184
OCT 23 2003
PATENT & TRADEMARK OFFICE

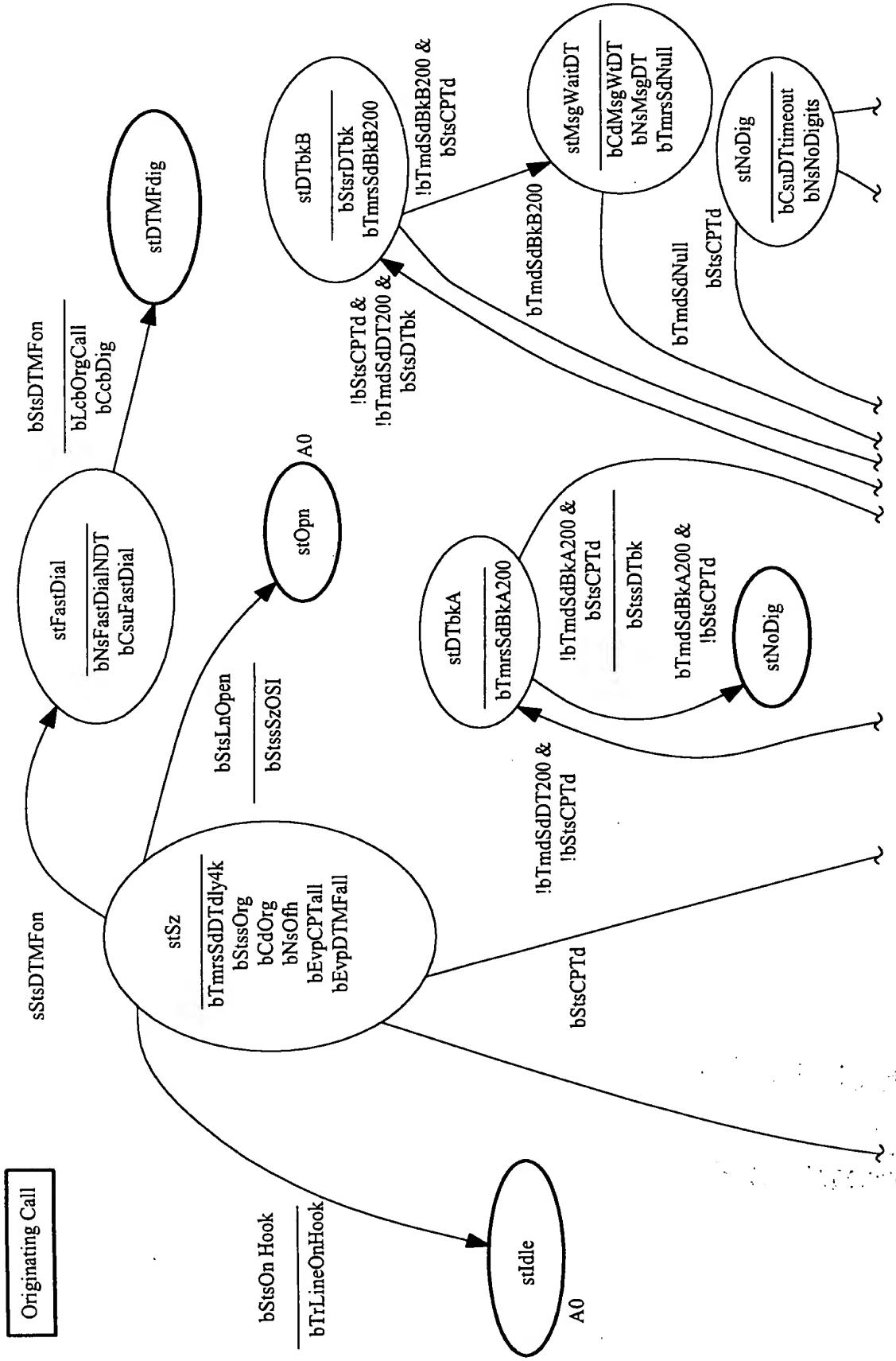


FIG. 691

OIPE JC184
OCT 23 2003
PATENT & TRADEMARK OFFICE

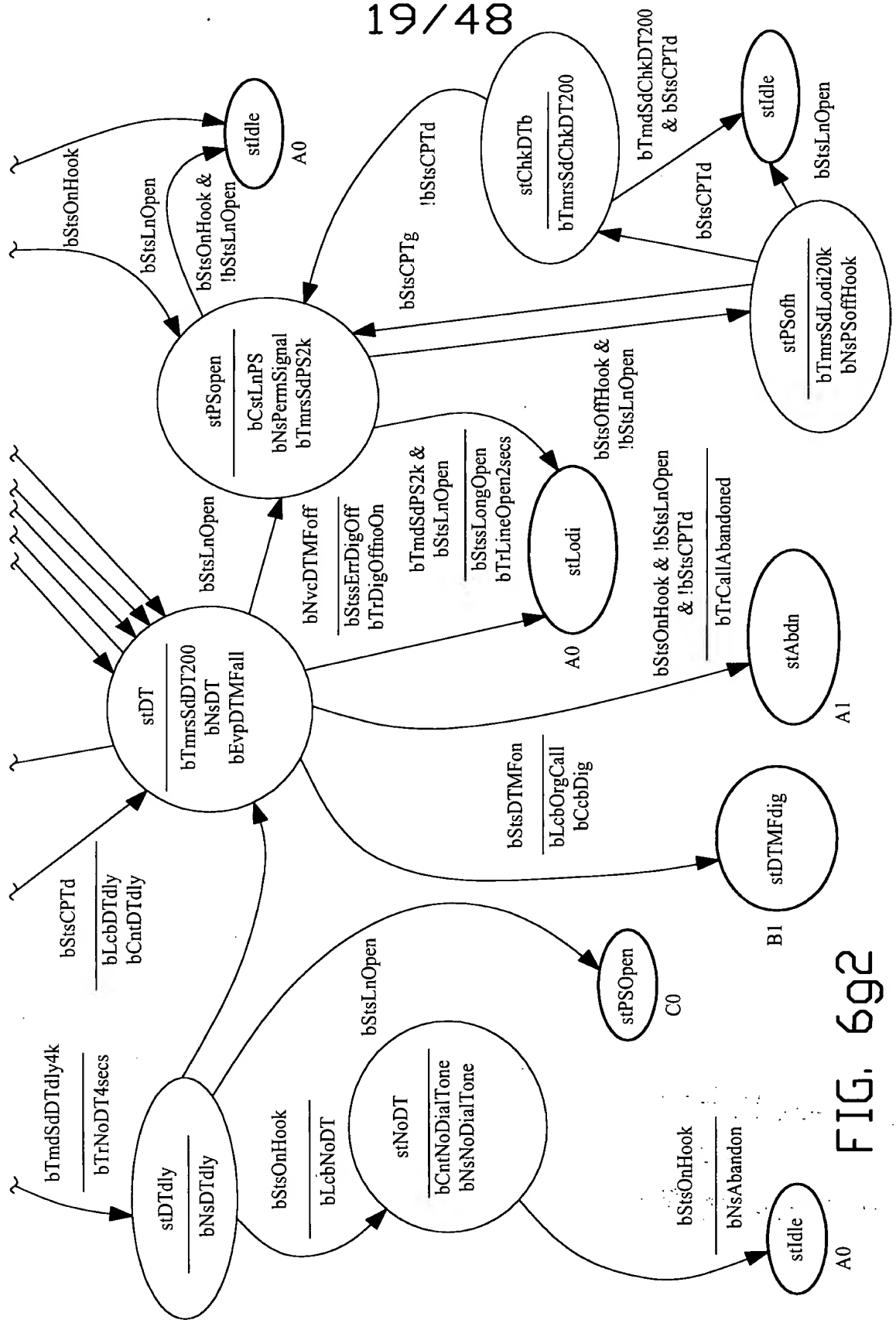


FIG. 6g2

OIPE
OCT 23 2003
PATENT & TRADEMARK

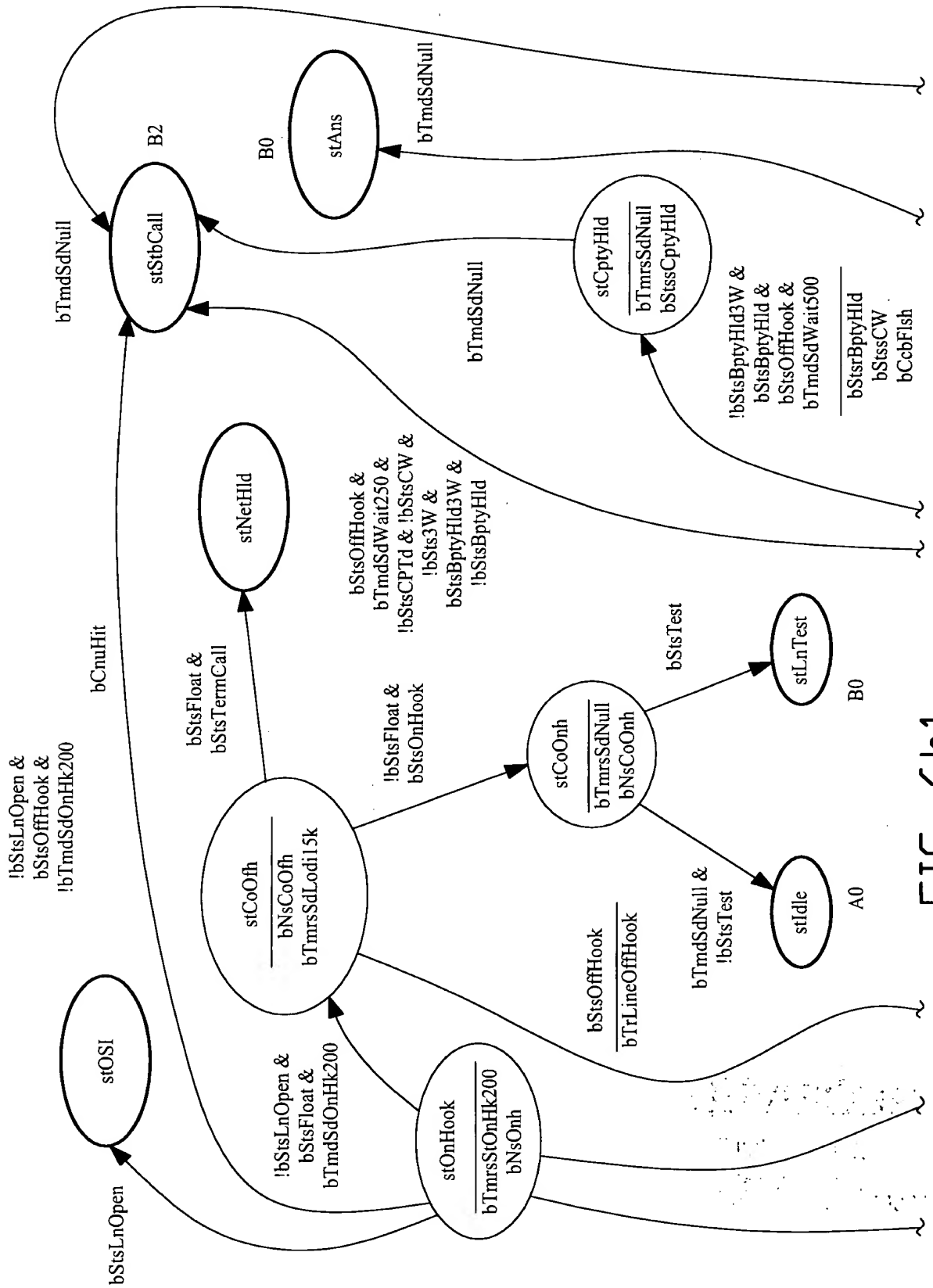


FIG. 6h1

OCT 23 2003
PATENT & TRADEMARK OFFICE

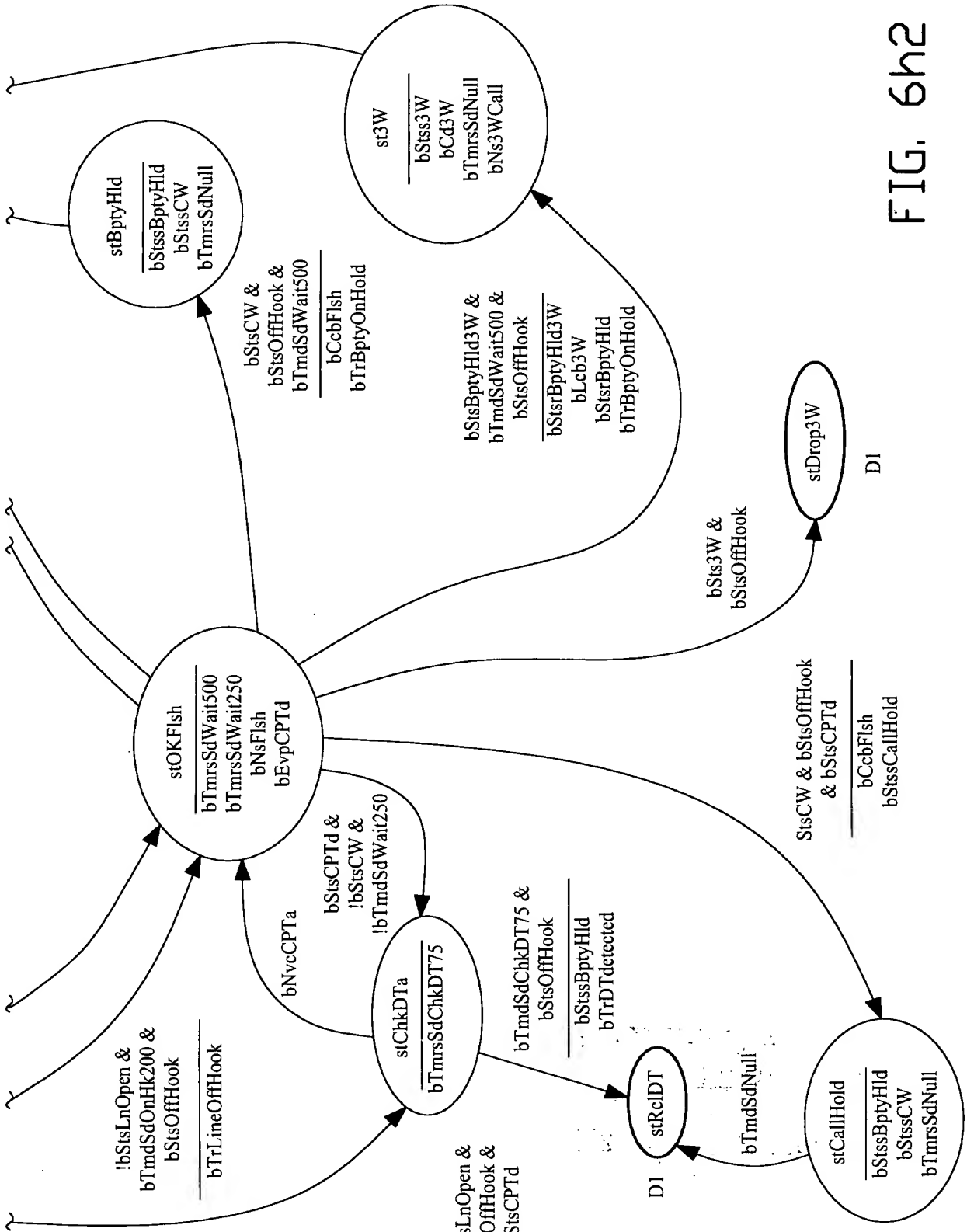


FIG. 6h2

OIPE
OCT 23 2003
PATENT & TRADEMARK OFFICE

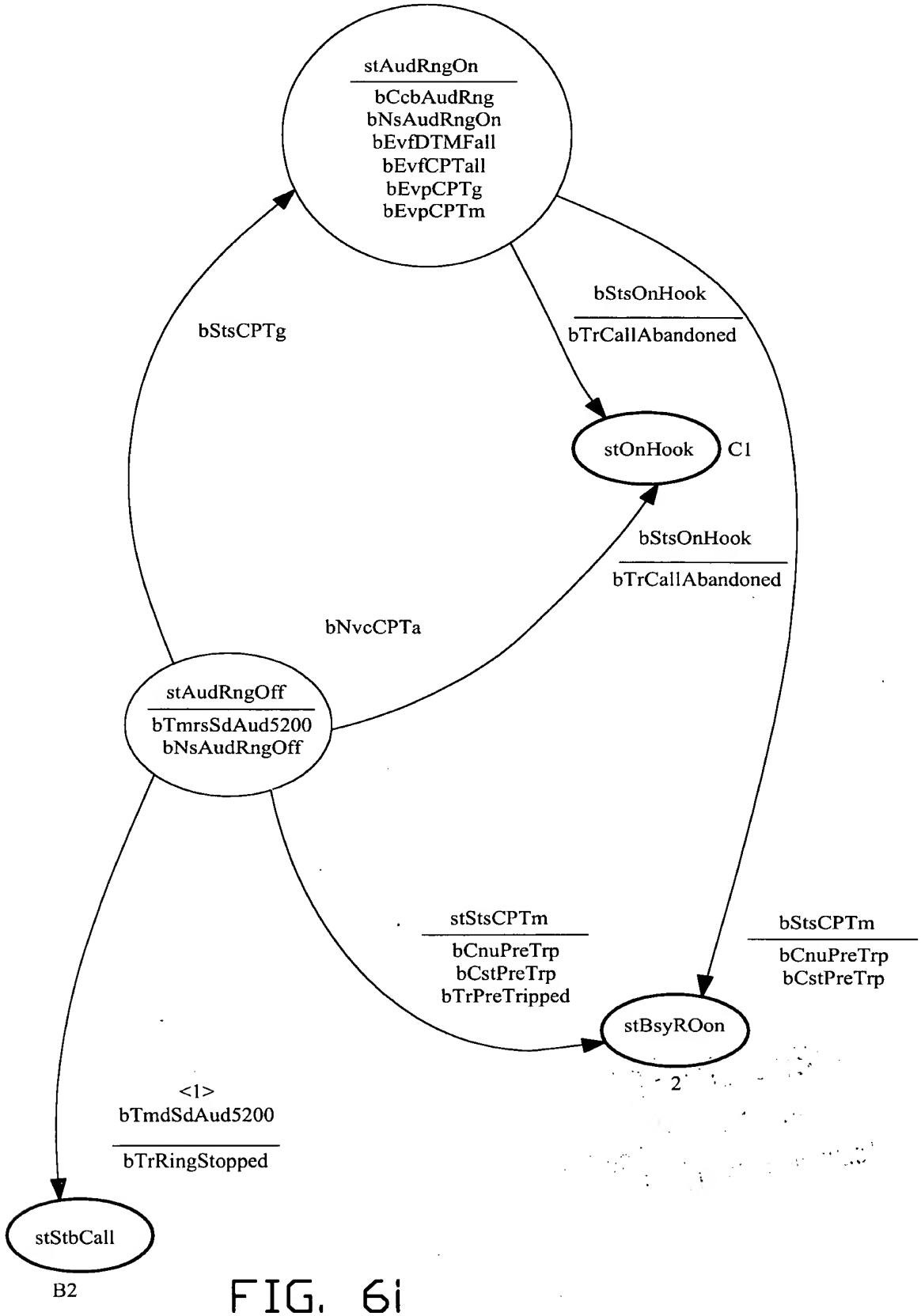


FIG. 6i

OIPE
OCT 23 2000
PATENT & TRADEMARK

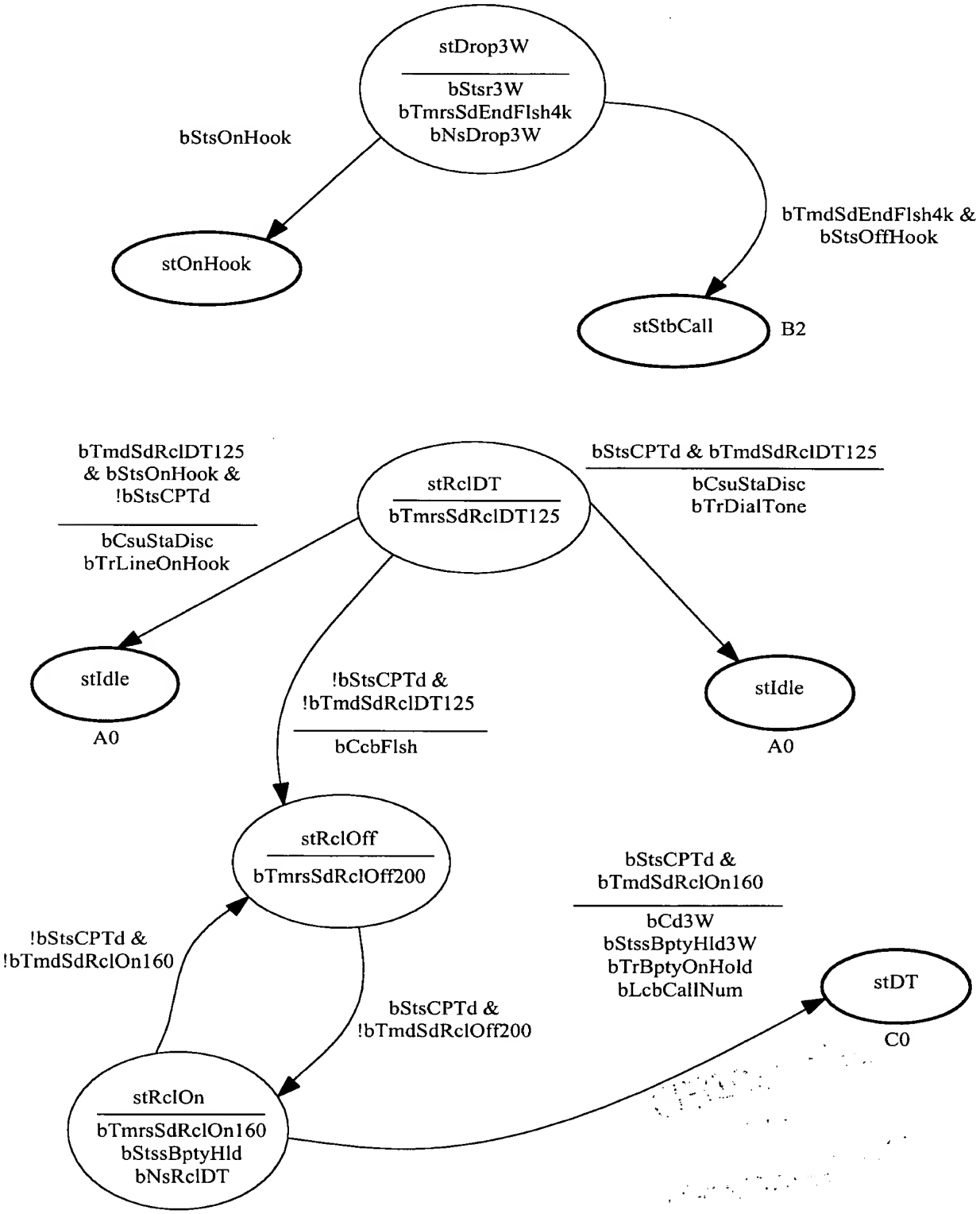


FIG. 6j

OIPE JC16
OCT 23 2003
PATENT & TRADEMARK OFFICE

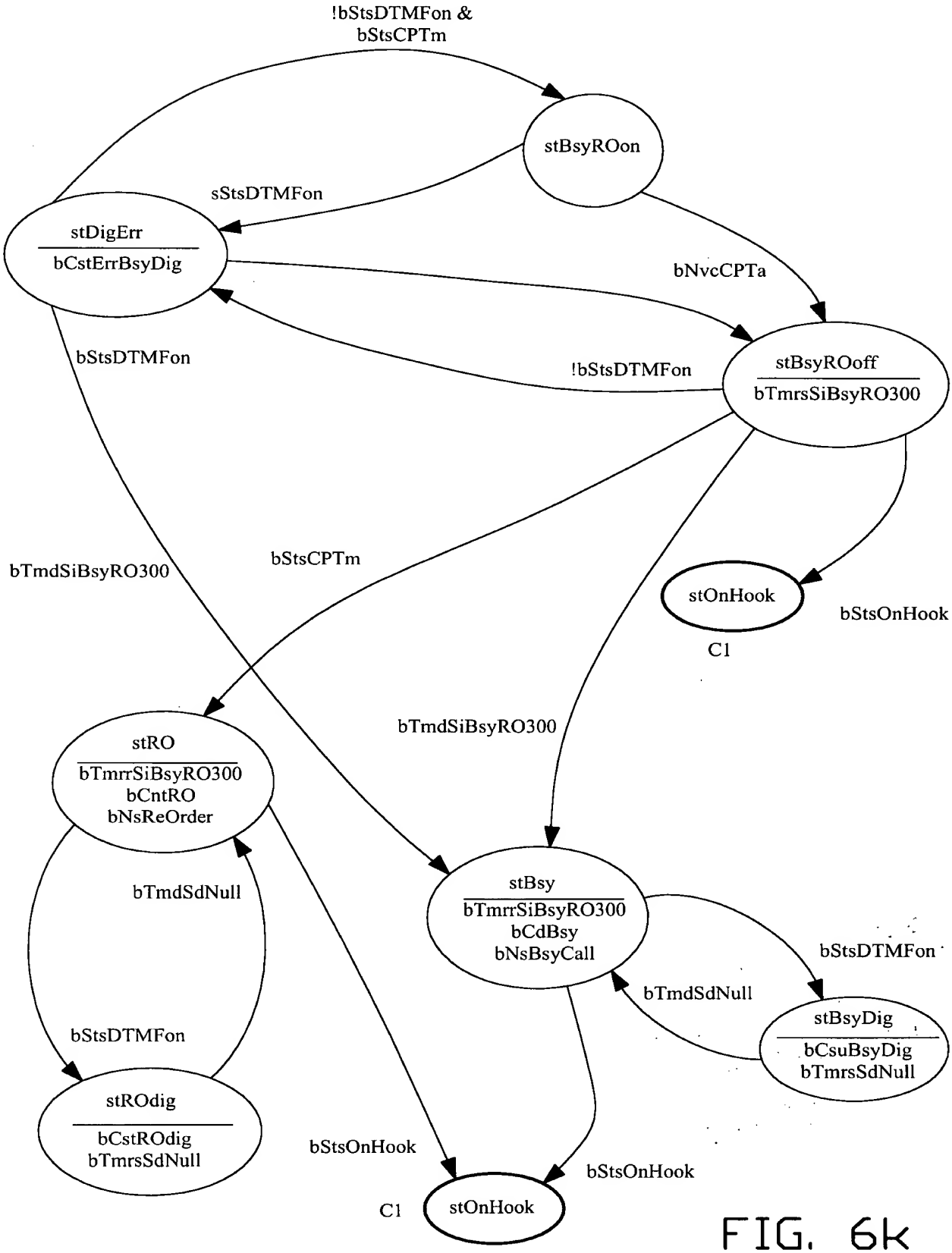


FIG. 6k

OIPE
OCT 23 2003
PATENT & TRADEMARK

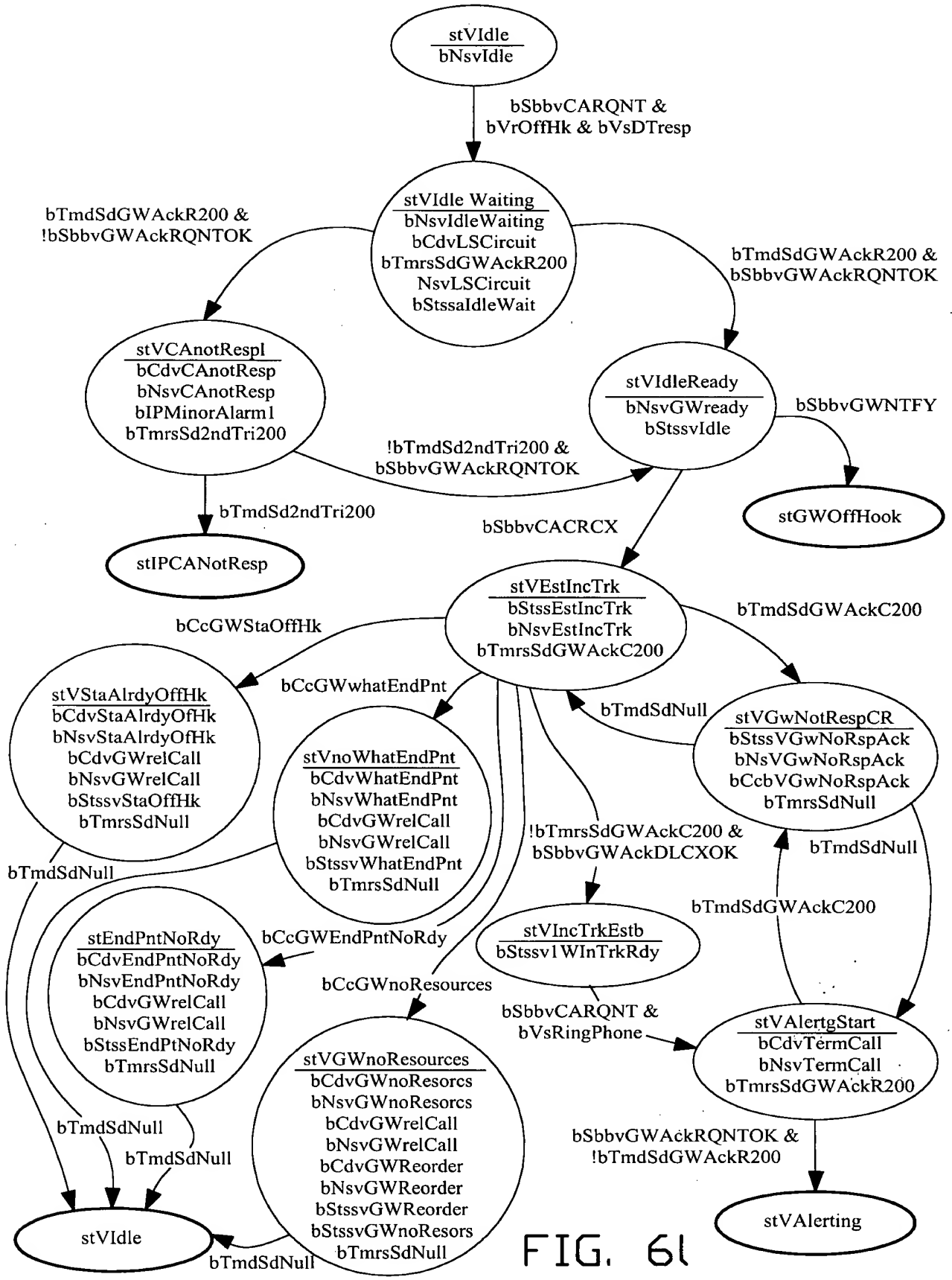


FIG. 61

OIPE
OCT 23 2003
PATENT & TRADEMARK

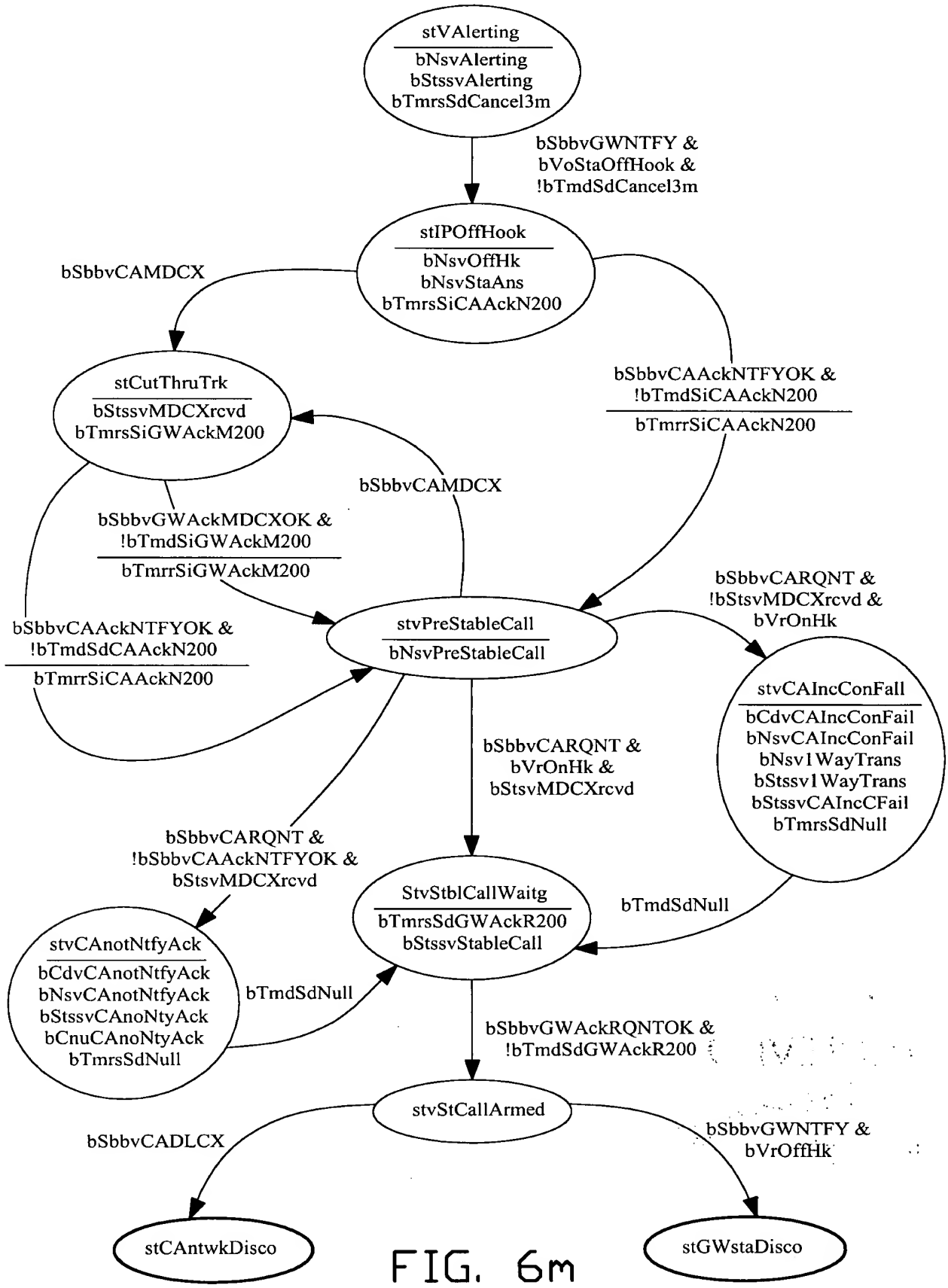


FIG. 6m

OIPE
OCT 23 2003
PATENT & TRADEMARK

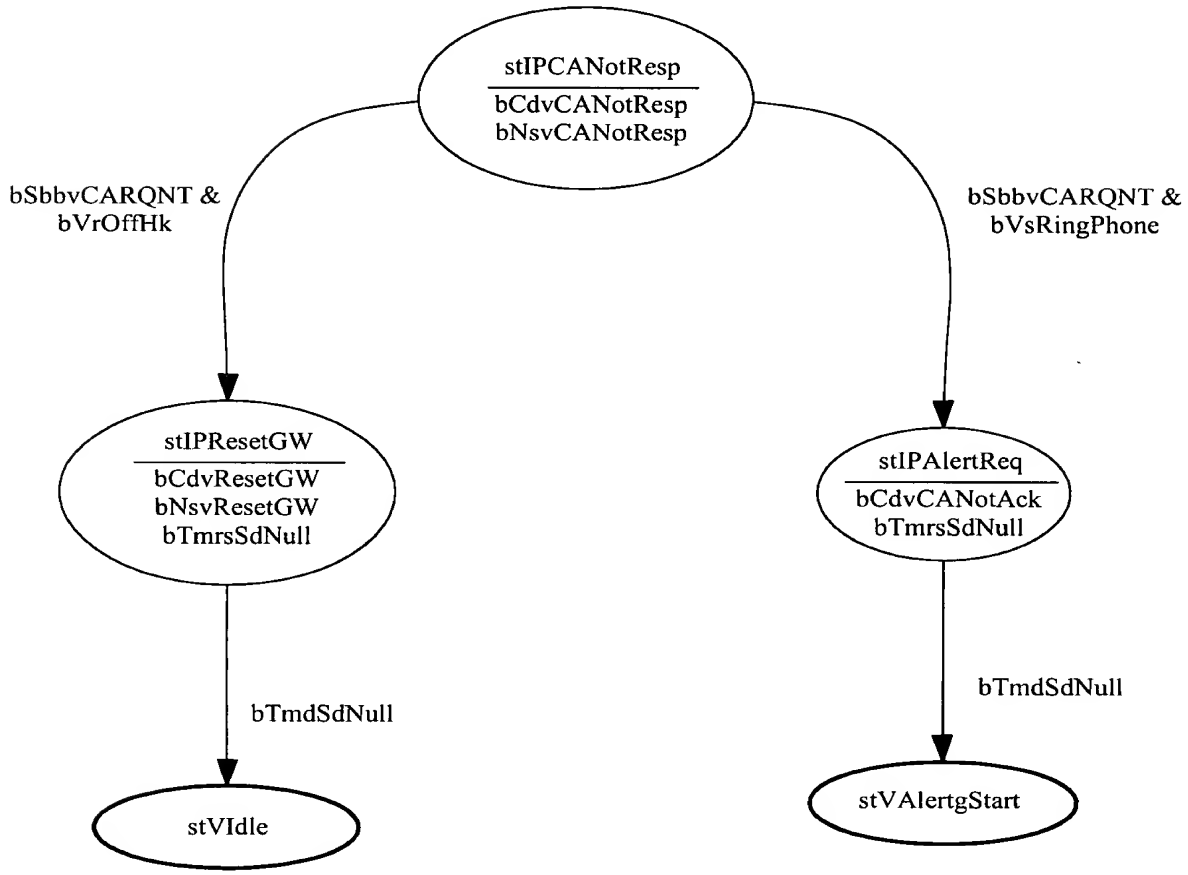
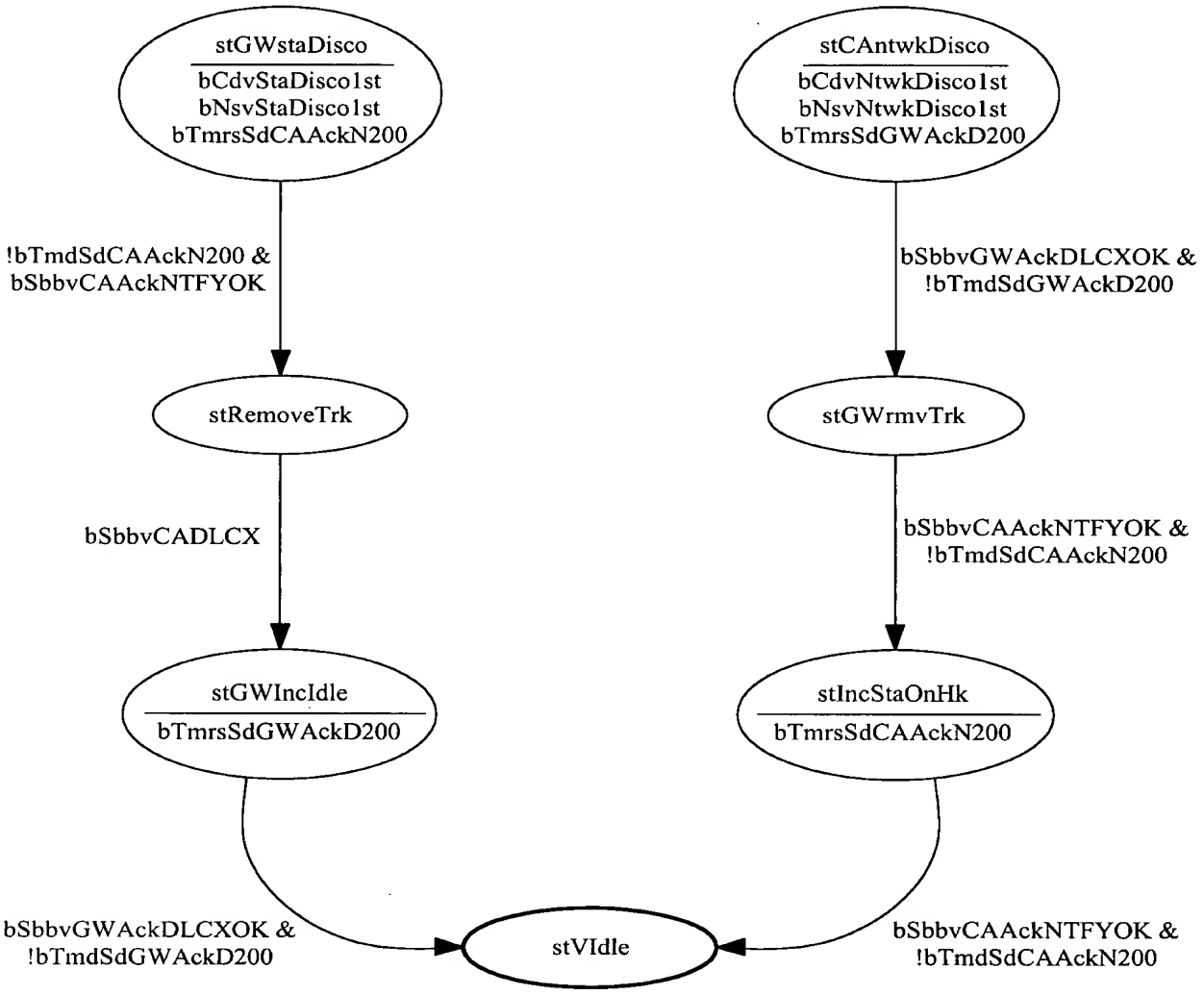


FIG. 6n

OIPE JC184
OCT 23 2003
PATENT & TRADEMARK OFFICE



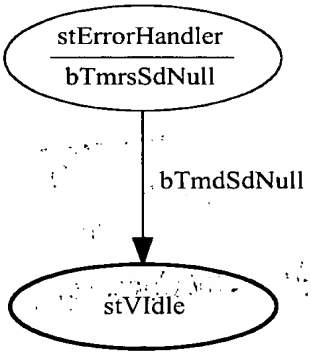


FIG. 6o

OIPE JC
OCT 23 2000
PATENT & TRADEMARK

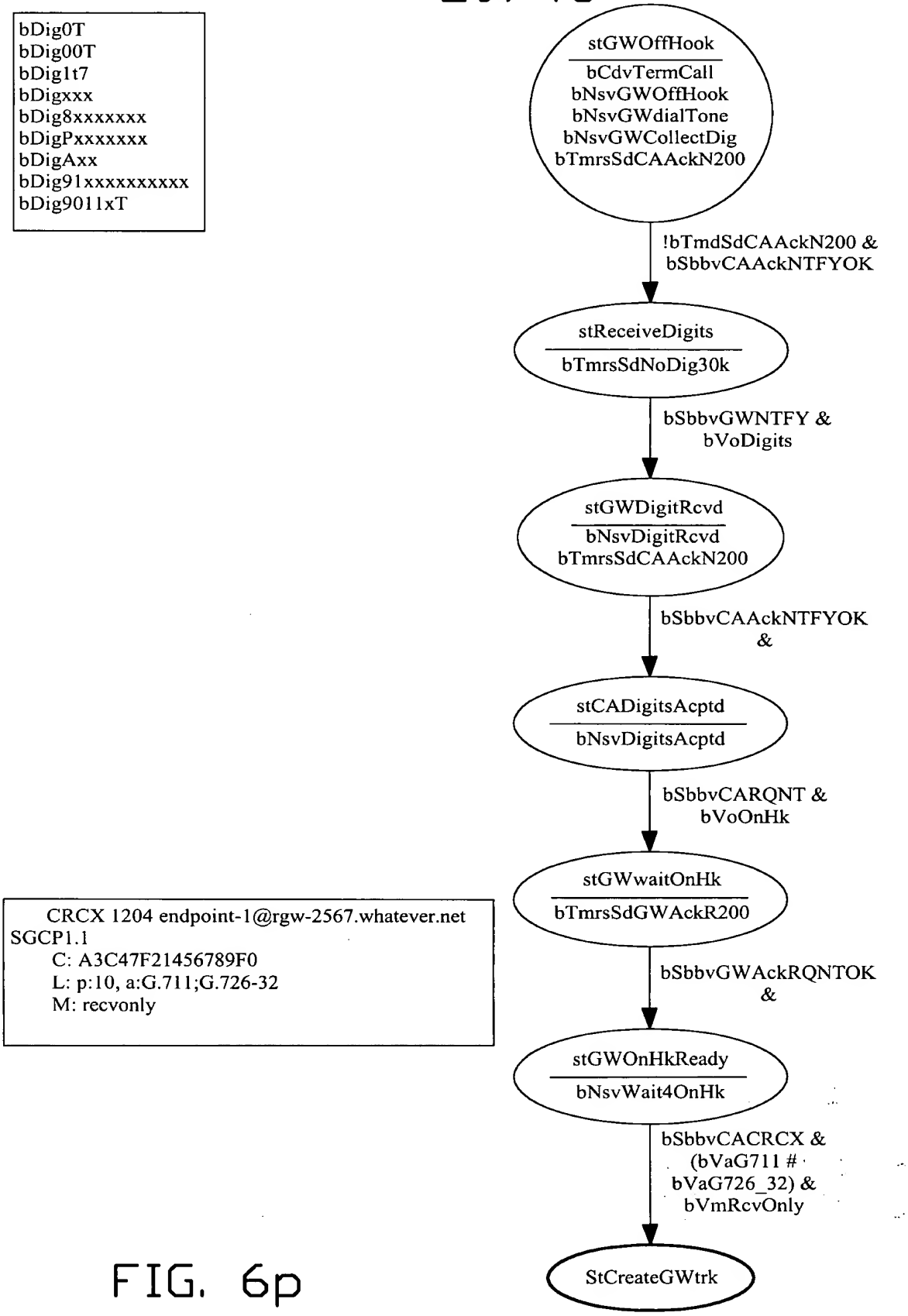


FIG. 6p

OIPE
OCT 23 2003
PATENT & TRADEMARK OFFICE

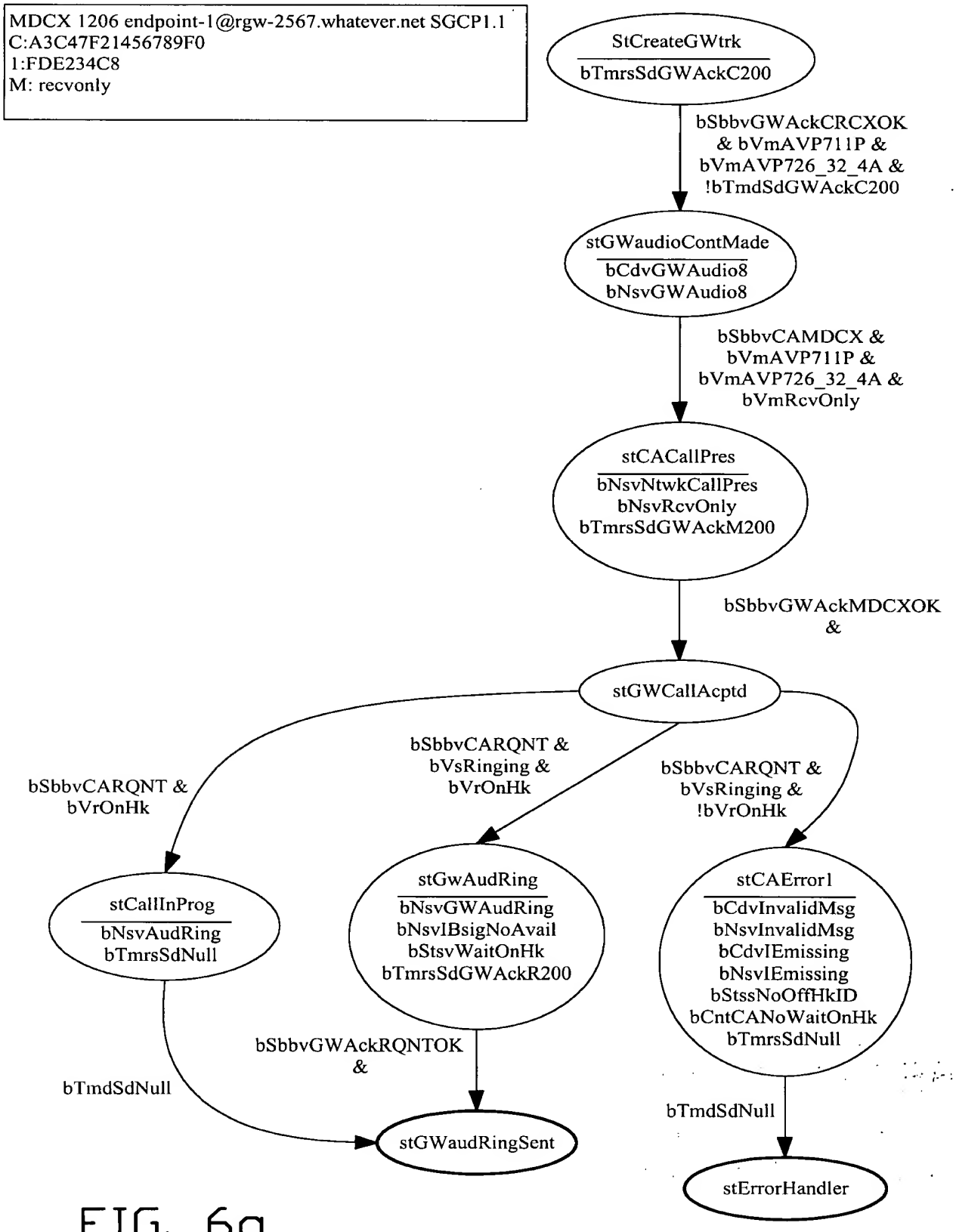


FIG. 6q

OIPE
OCT 23 2003
PATENT & TRADEMARK

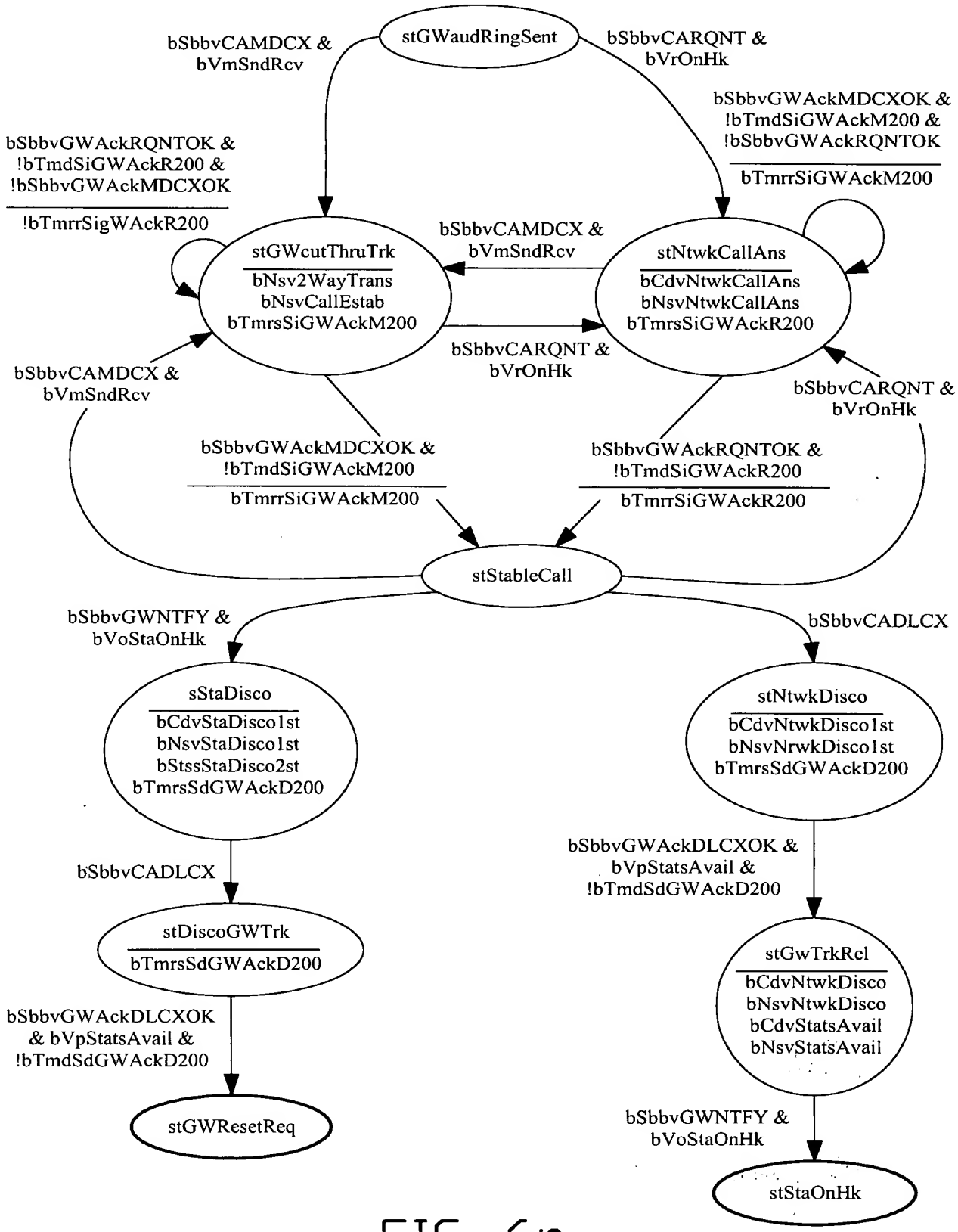


FIG. 6r

OIPE
OCT 23 2003
PATENT & TRADEMARK

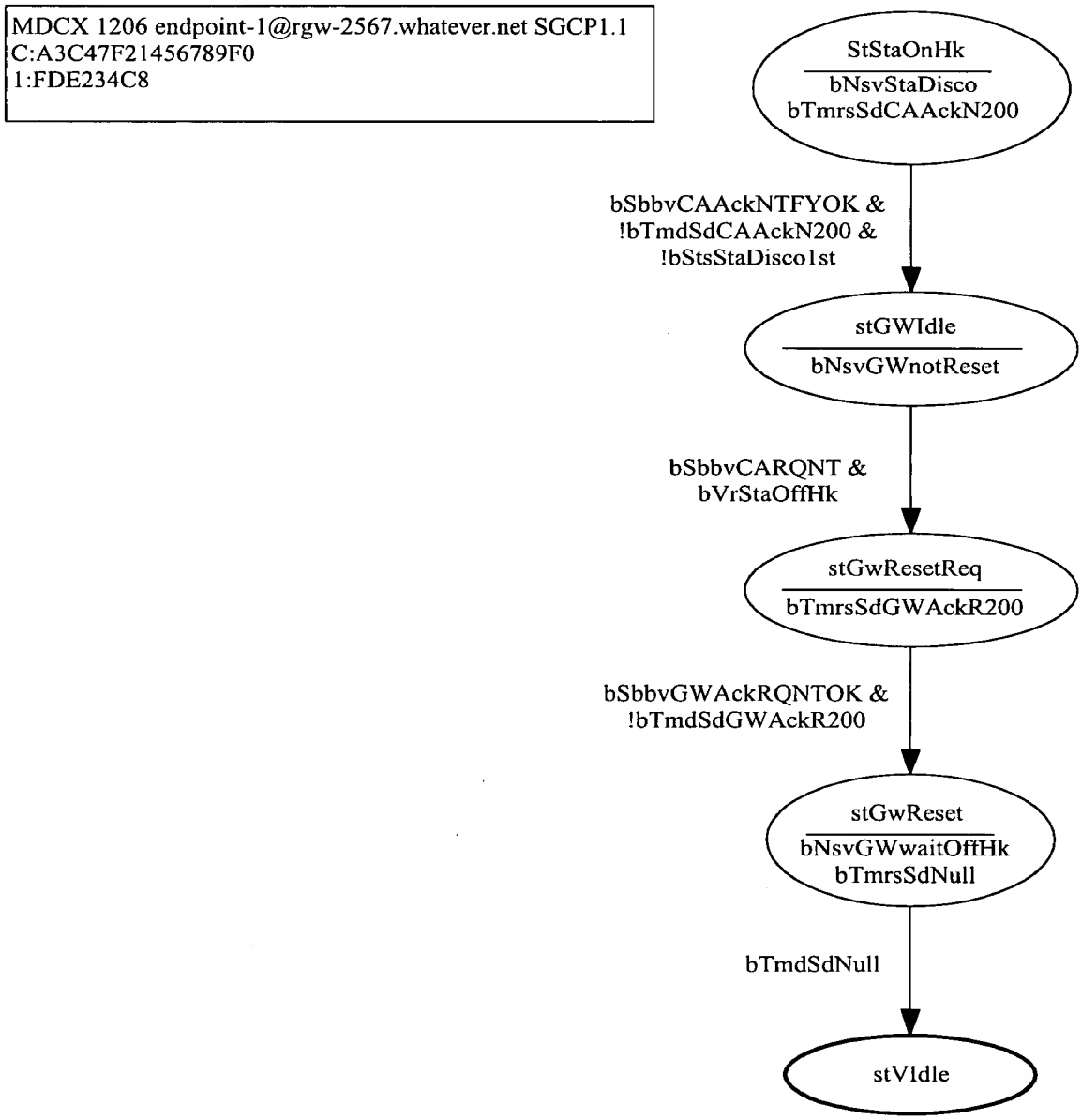


FIG. 6s

OIPE JC14
OCT 23 2003
PATENT & TRADEMARK OFFICE

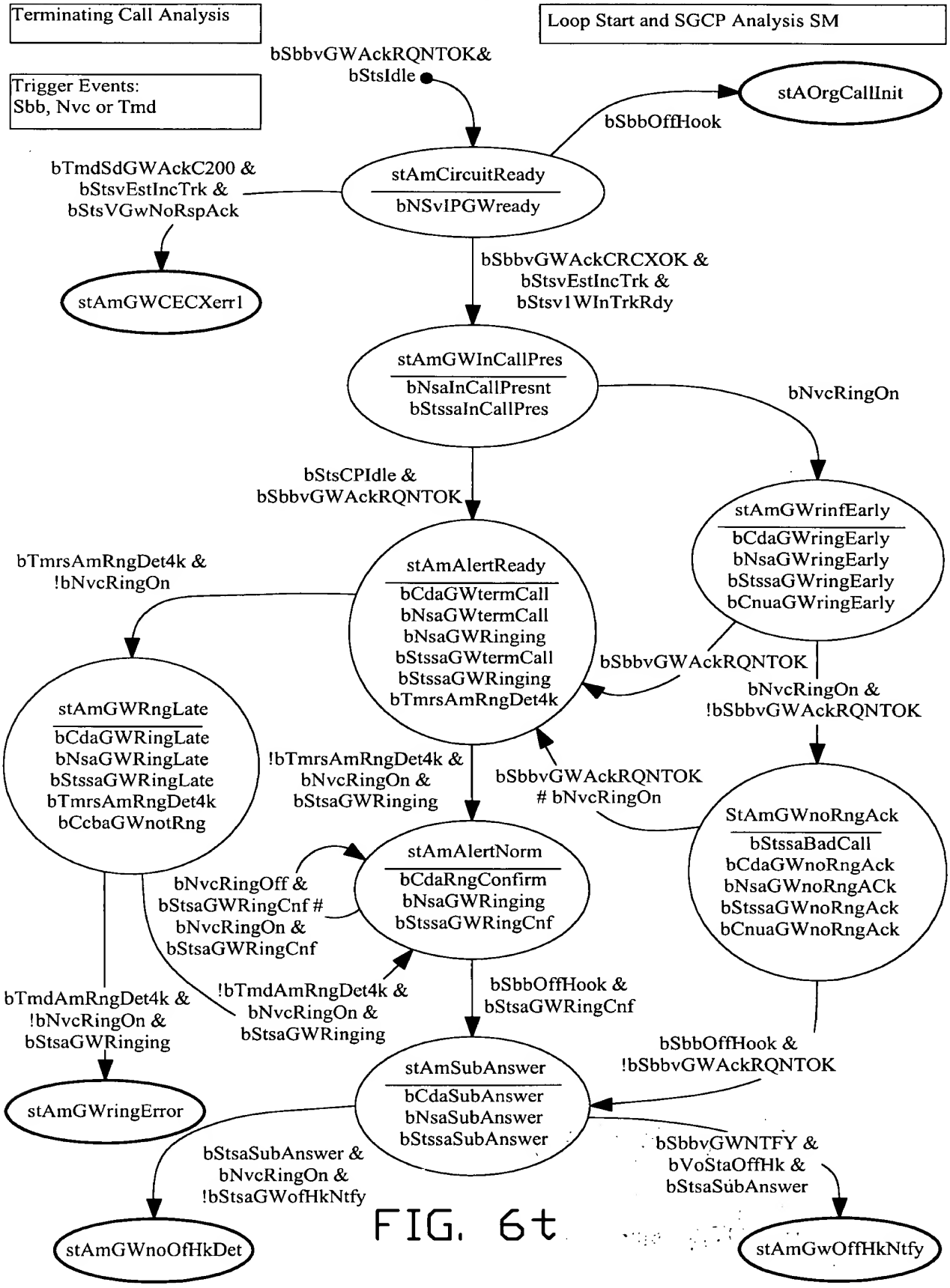


FIG. 6t

OIPE
OCT 23 2003
PATENT & TRADEMARK

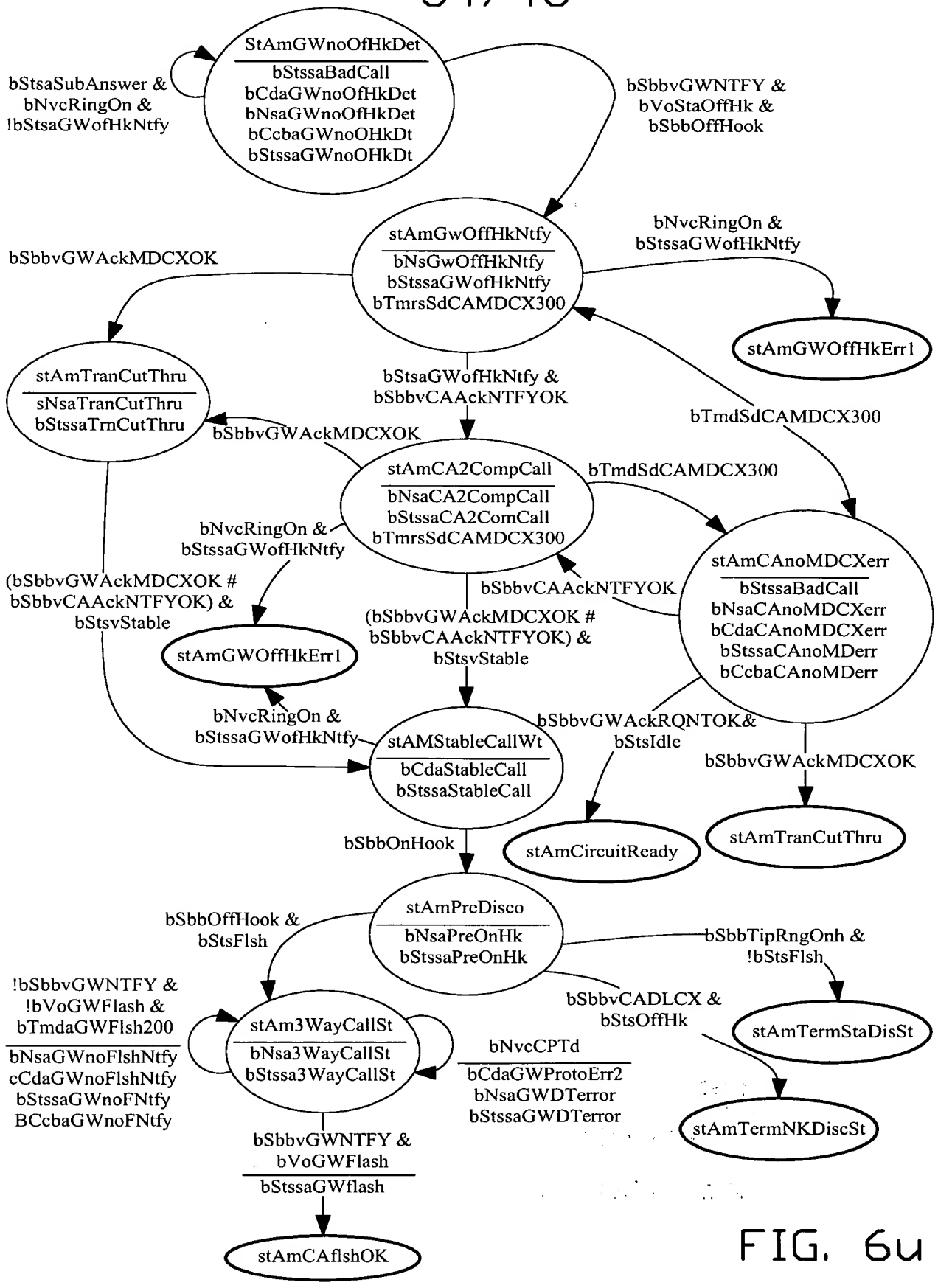


FIG. 6u

OIPE
OCT 23 2003
PATENT & TRADEMARK

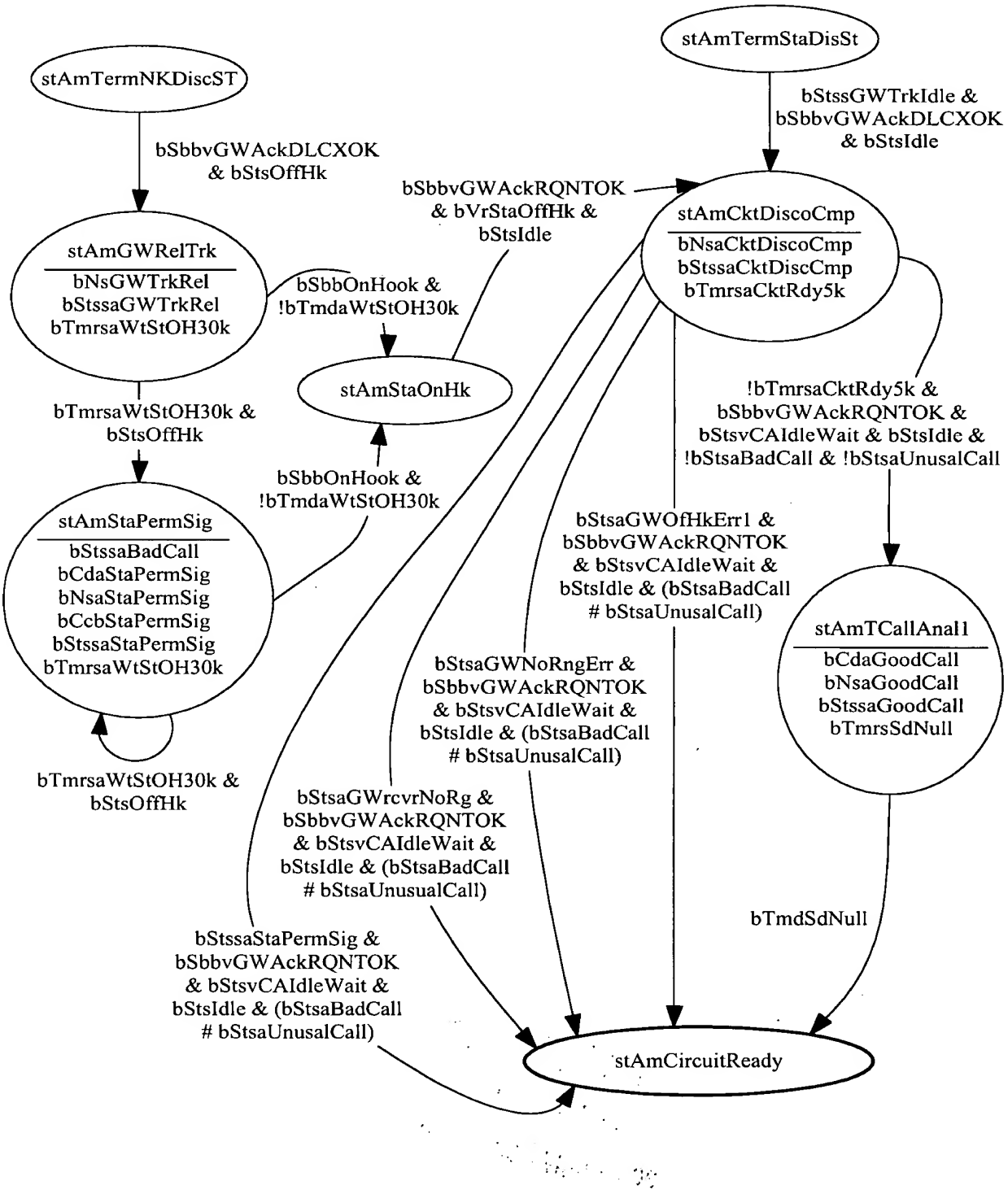


FIG. 6v

OIPE SC184
OCT 23 2003
PATENT & TRADEMARK OFFICE

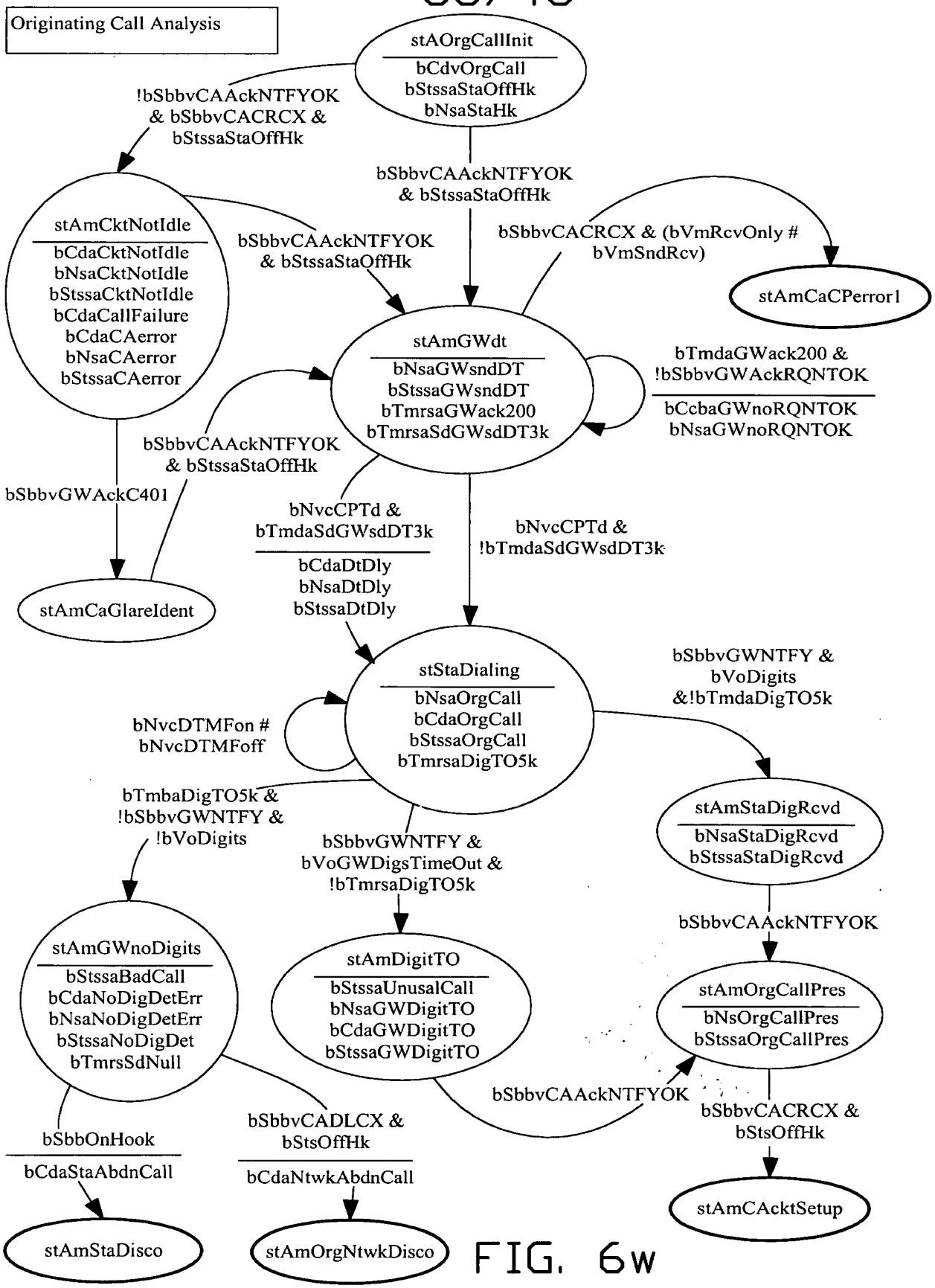


FIG. 6w

OIPE
OCT 23 2003
PATENT & TRADEMARK

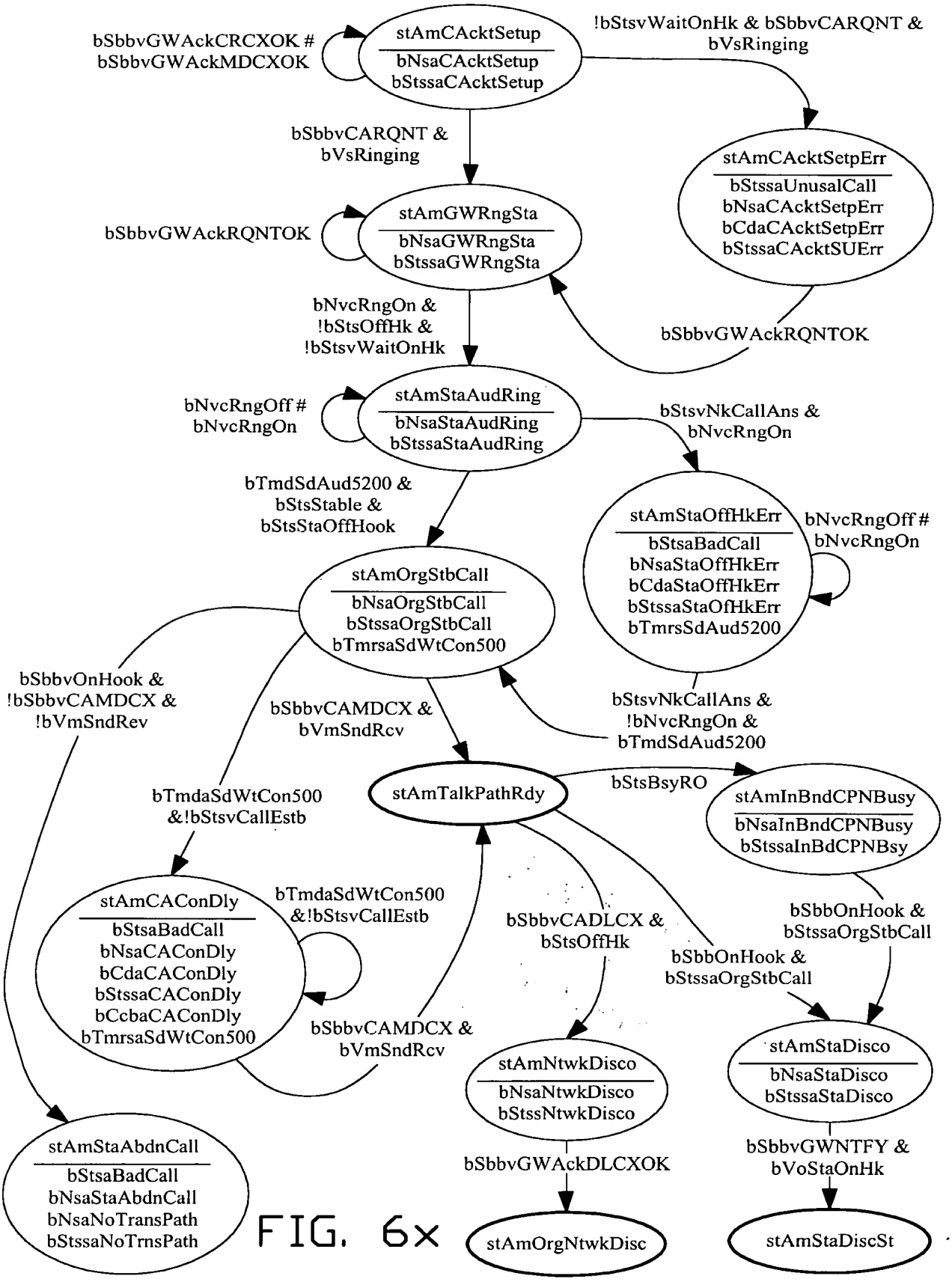


FIG. 6x

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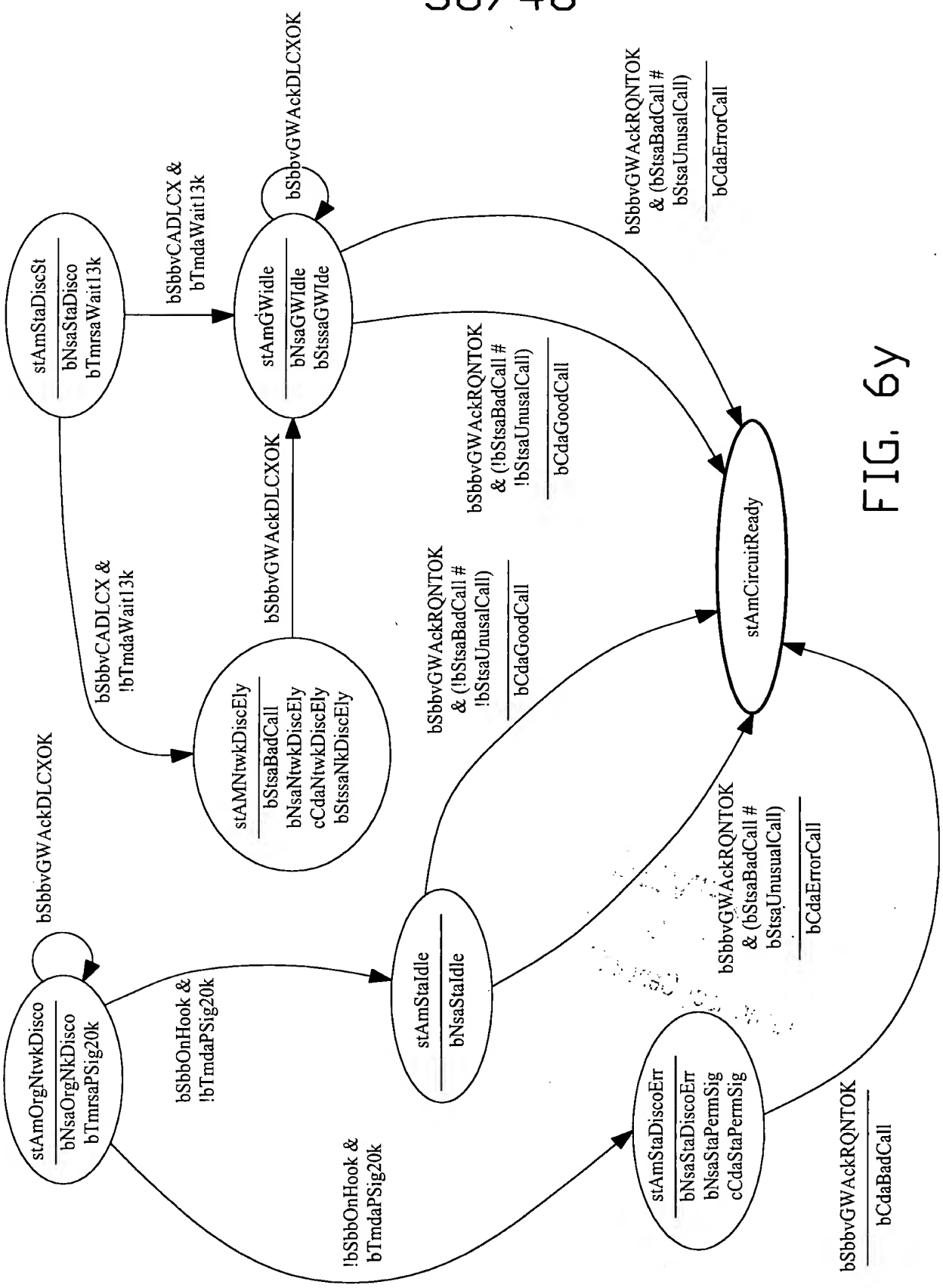

FIG. 6y

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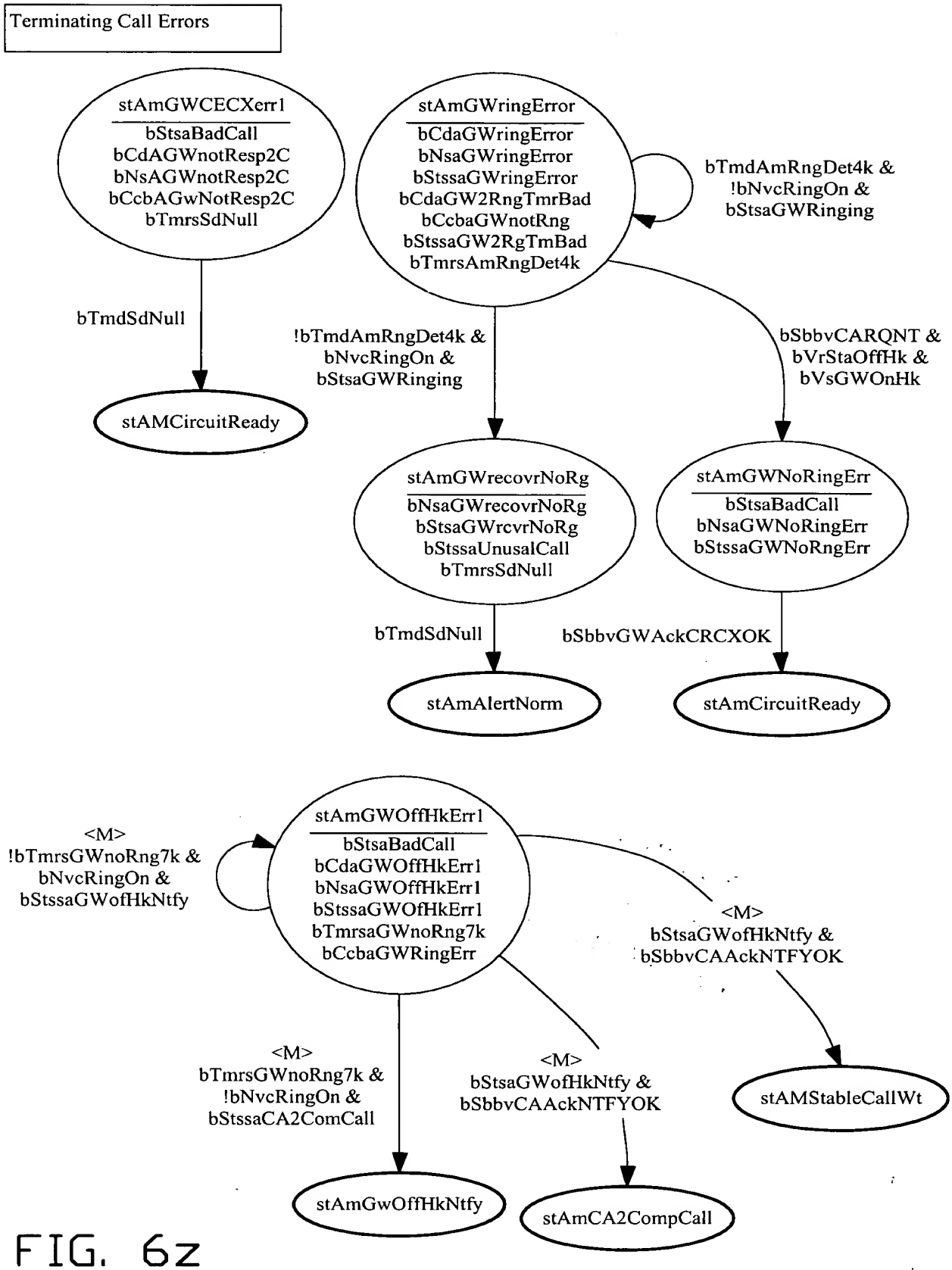

FIG. 6z

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Originating Call Errors

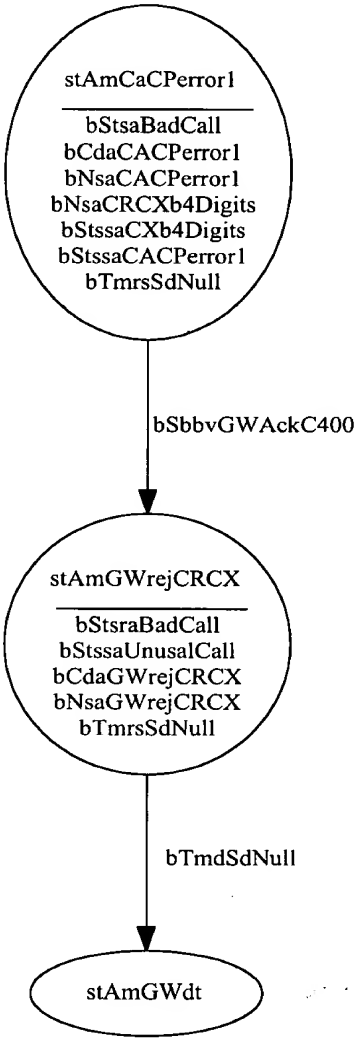

FIG. 6z1

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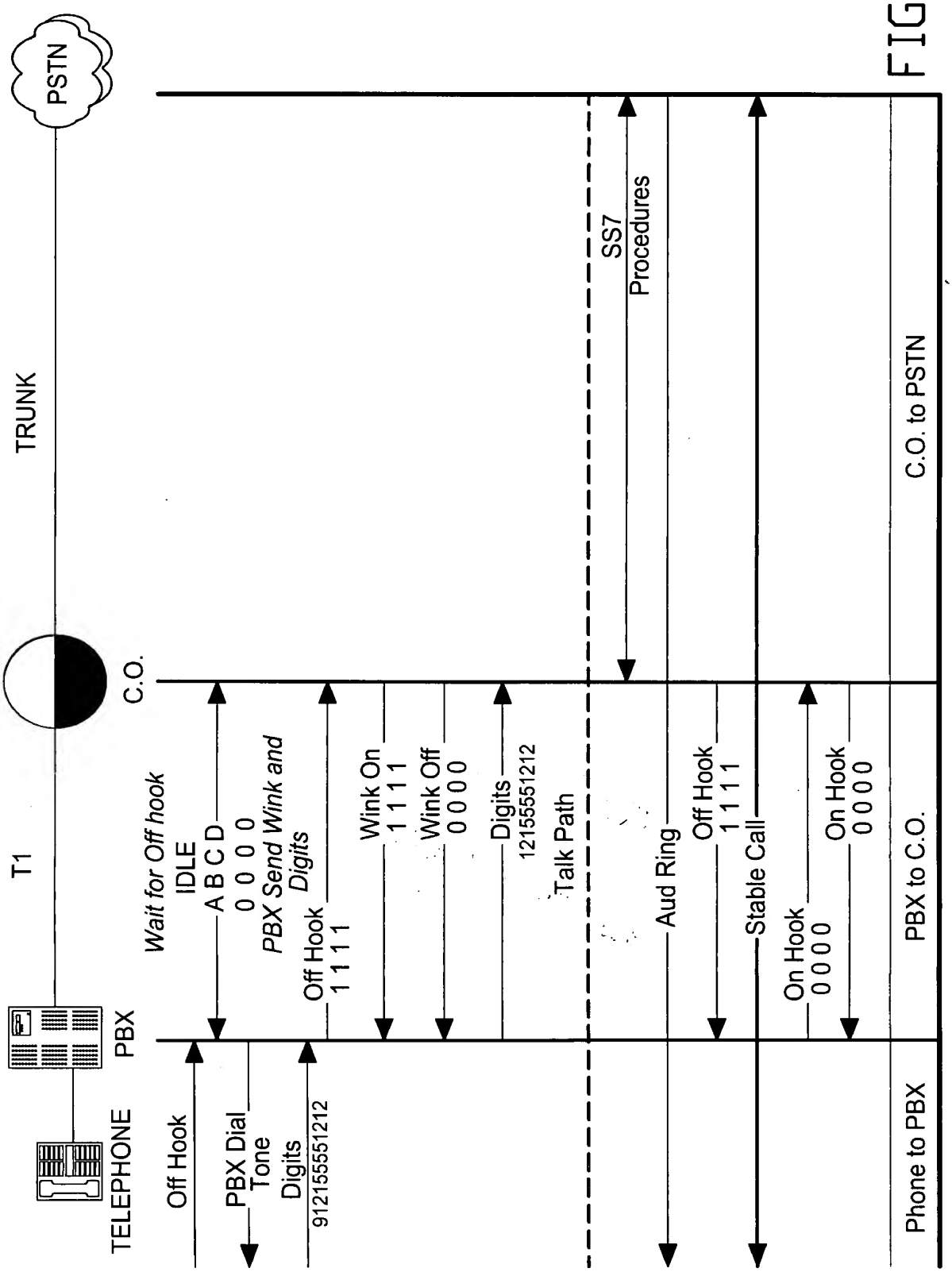

FIG. 7

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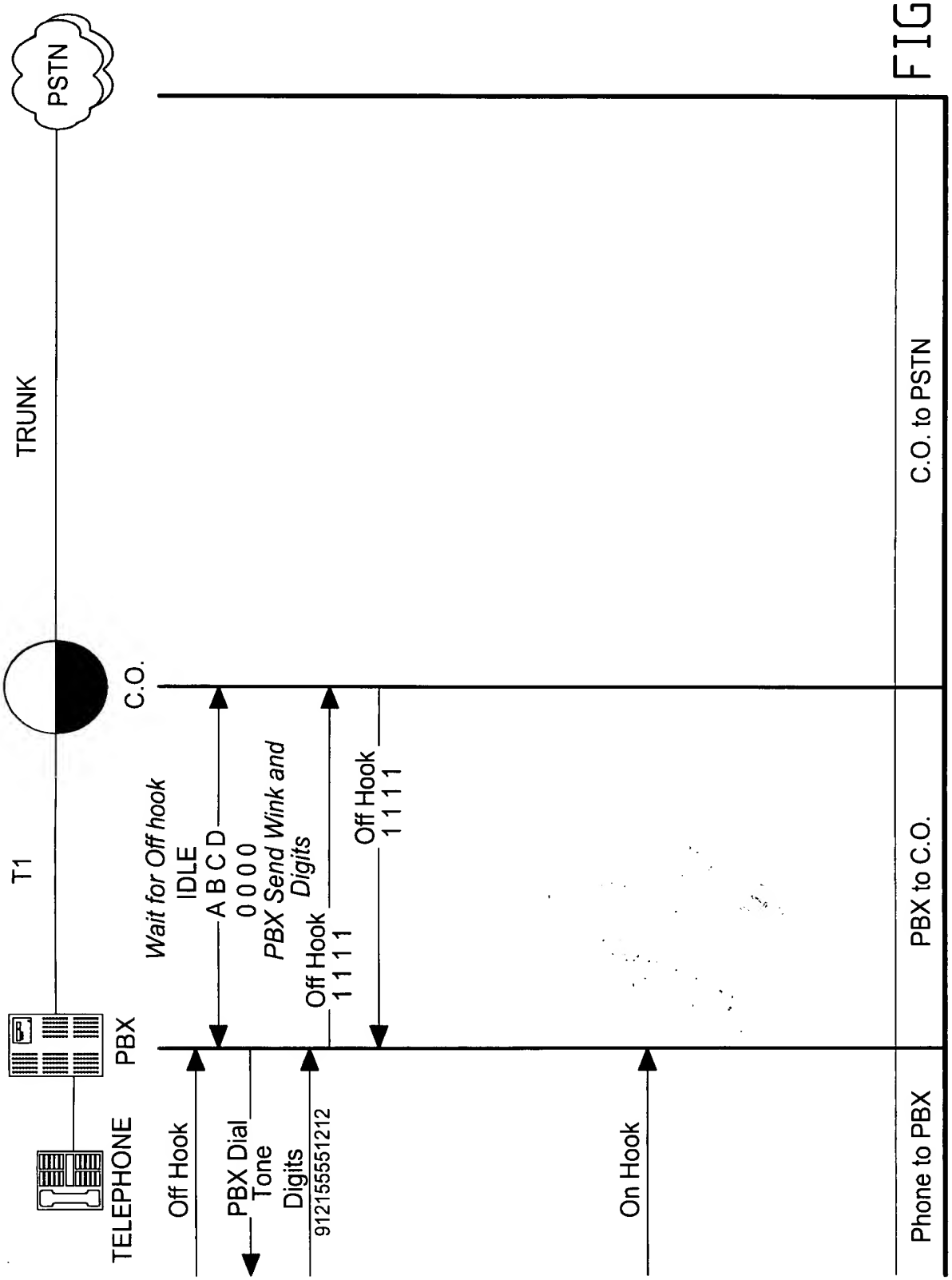
FIG. 8



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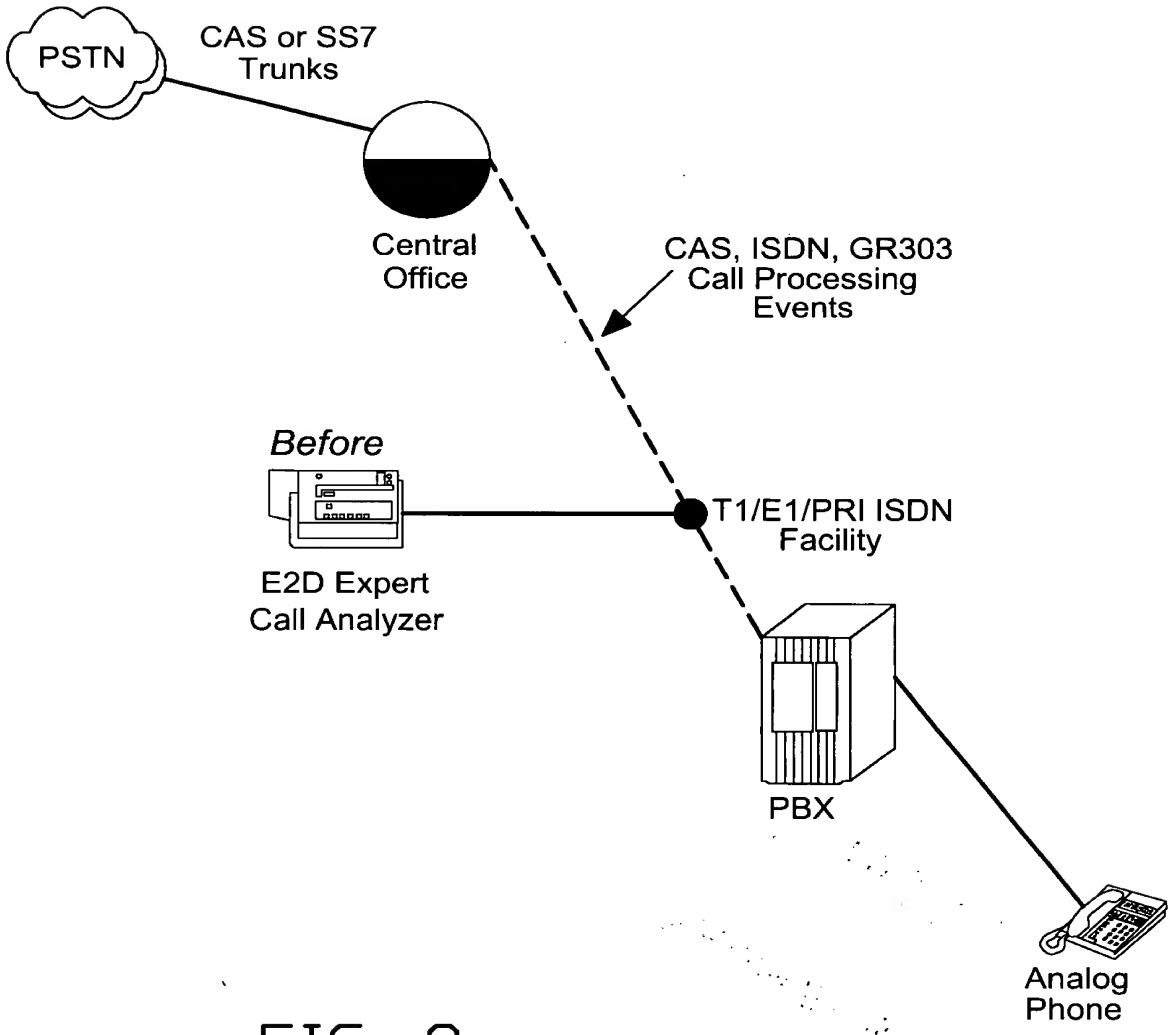

FIG. 9

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Subscriber:

Facility Type: T1, ESF, B8ZS

Date 04/13/99

Facility	Channel	Circuit Type	Outgoing Call Count	Incoming Call Count	Status
1	1	2Way Wink Start DTMF	132	0	
1	2	2Way Wink Start DTMF	112	0	
1	3	2Way Wink Start DTMF	97	0	
1	4	2Way Wink Start DTMF	88	0	
1	5	2Way Wink Start DTMF	65	0	
1	6	2Way Wink Start DTMF	40	0	
1	7	2Way Wink Start DTMF	36	1	
1	8	2Way Wink Start DTMF	23	1	
1	9	2Way Wink Start DTMF	18	4	
1	10	2Way Wink Start DTMF	12	7	
1	11	2Way Wink Start DTMF	8	11	
1	12	2Way Wink Start DTMF	5	34	
1	13	2Way Wink Start DTMF	2	46	
1	14	2Way Wink Start DTMF	1	58	
1	15	2Way Wink Start DTMF	0	69	
1	16	2Way Wink Start DTMF	0	81	
1	17	Not Used	0	0	
1	18	Not Used	0	0	
1	19	Not Used	0	0	
1	20	Loop Start Voice	15	12	
1	21	Loop Start Voice/Modem	8	10	
1	22	Loop Start Modem	5	1	
1	23	Loop Start FAX	33	9	
1	24	Not Used	0	0	
		Total	**700**	**344**	

FIG. 10

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Digit Map

Subscriber:

# of Digits	Digit String	Direction
1	None	
2	90	Outgoing
3	900	Outgoing
4	XXXX (4000 – 6500)	Intra PBX
	9411	Outgoing
	9611	Outgoing
	9711	Outgoing
5	None	
6	None	
7	None	
8	Dial 9, XXXXXXX	Outgoing
9	None	
10	None	
11	Dial 9, 1, NPA-NXX-XXXX	Outgoing
	Dial 8, 1, NPA-NXX-XXXX	Outgoing
	Dial 8, 0, NPA-NXX-XXXX	Outgoing
12	None	
13	None	
14	Dial 8, 011, CC-XXXXXXXX	Outgoing
15	None	
16	Dial 8, 011, CC-XXXXXXXXXX	Outgoing
17	None	
18	None	
19	8, 1010, XXX, 1, NPA-NXX-XXXX	Outgoing
Misc.	XXXX – IVR/Voice Mail	Incoming

Notes:

Toll Diversion Detected
Answer Supervision Detected
Avg. Inter-Digit timing = 127 ms
Auto-dialers detected – Inter–digit timing 45 ms
No International calls detected

FIG. 11

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Call Handling Performance - Totals

Subscriber:

Date: 04/13/99

	Attempts	Comp	Bad Digits	Abdn. Calls	Reorder	Busy	Other	Voice	Data	FAX
Incoming Calls	352	343	0	2	0	5	2	343	1	9
Outgoing Calls	797	700	23	41	4	16	13	660	7	33
Busy Hours	10:00	11:00	13:00	14:00	16:00	17:00				
Available Circuits	20	18	20	20	20	20				
Required Circuits (.1% Congestion)	23	25	19	21	28	22				

Top 10 Failures

Trouble	Direction	% of Total
Ring No Answer	Outgoing	4%
Bad Digits	Outgoing	2%
Busy	Both	2%
Dead After Dialing	Outgoing	1%
Reorder	Outgoing	.3%

FIG. 12

OIPE JC16
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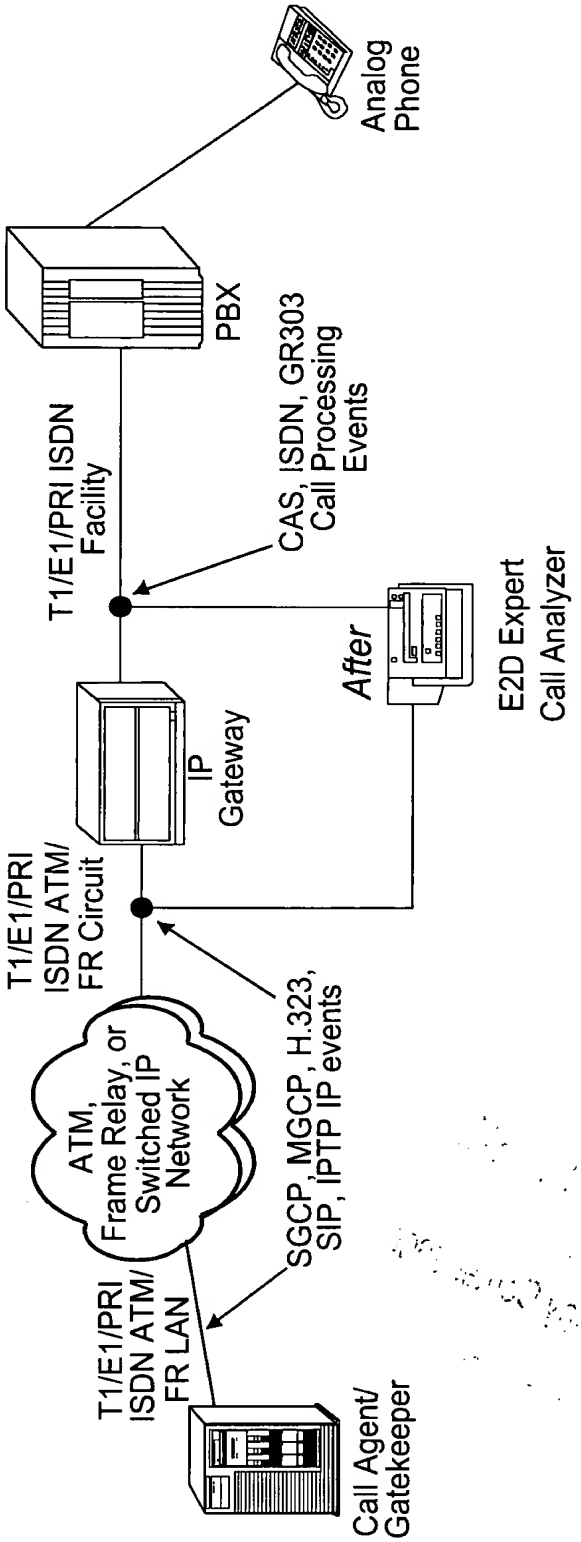

FIG. 13

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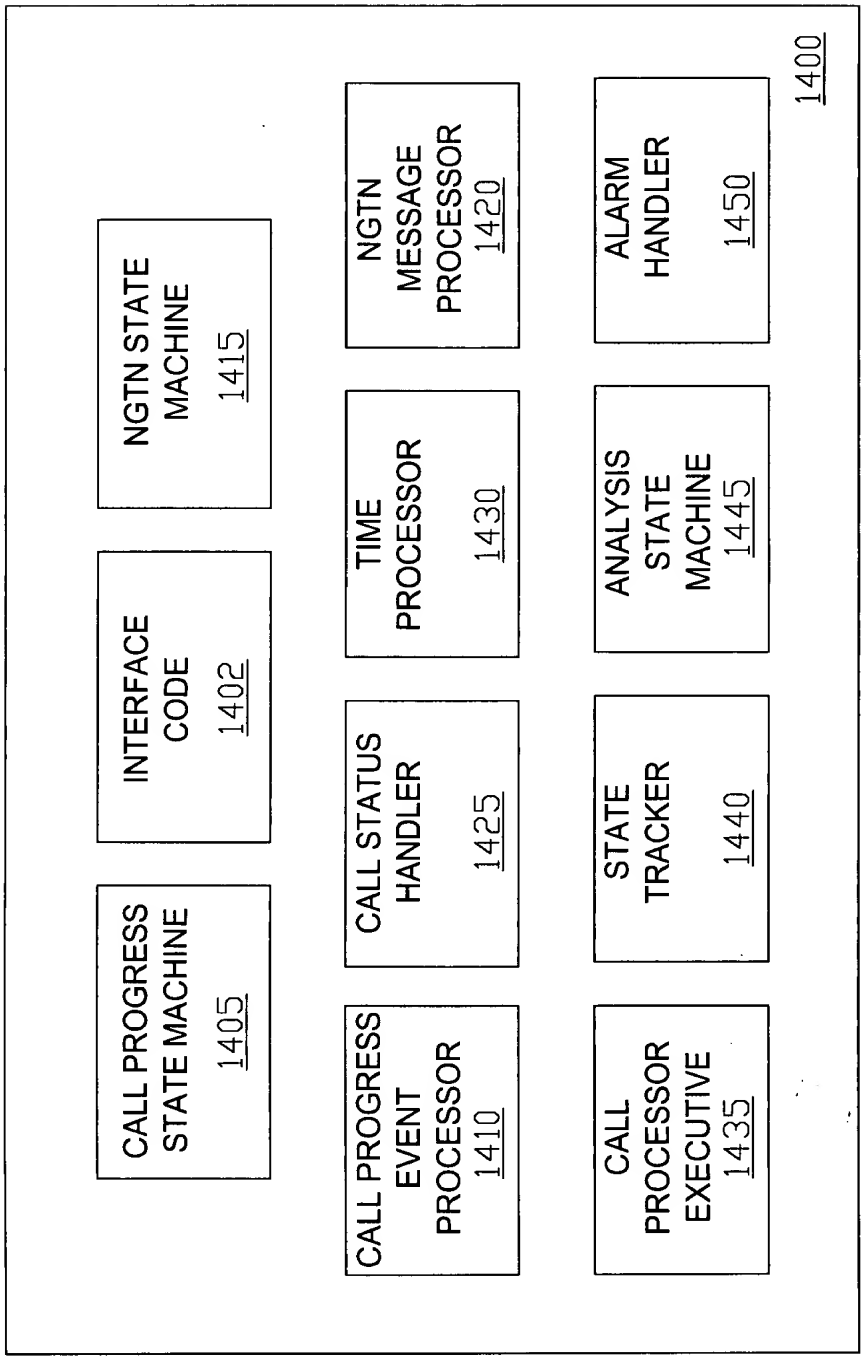

FIG. 14